

حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثاني





Final Examinations

of Some Governorates

2025

1 Cairo Governorate

Ain-Shams Administration

Answer the following questions :

Question 1

A Choose the correct answer :

- (1) The liquid element which is bad conductor of heat and electricity is
(a) bromine. (b) chlorine. (c) mercury. (d) lithium.
- (2) The molecular formula of hydrochloric acid is
(a) HClO (b) HCl (c) HClO_2 (d) HClO_3

B What is meant by each of the following :

- (1) Atomic group. (2) Metallic bond.
(3) Displacement. (4) Induced mutations.

Question 2

A Complete the following sentences from the words between the brackets :
(Joule – Newton – 3% – 71%)

- (1) The weight is estimated in
(2) The percentage of water on the Earth's surface is approximately

B (1) Write the chemical formula of each of the following compounds :

- 1- Sulphuric acid. 2- Sodium hydroxide.

(2) Give one example for each of the following :

- 1- Project for generating electricity through the conversion of potential energy into kinetic energy.
2- Commensalism.

Question 3

A Write the scientific term for each of the following statements :

- (1) A scale ranging between the values 0 to 14 used to determine the acidity and the basicity of solutions.
(2) A substance whose dissolution in water leads to an increase in the percentage of OH^- anions in the solution.

B Give reasons for each of the following :

- (1) The jaw of horses is characterized by the presence of incisors, while the jaw of lion is characterized by the presence of sharp canines.
- (2) The crystals of surface igneous rocks are small in size.
- (3) The nucleic acid DNA is known as the double helix.
- (4) The kinetic energy of an object increases during its fall even though its mass is constant.

Question 4

A Mark (✓) or (X) for each statement :

- (1) The kinetic energy of an object at rest equals zero. ()
- (2) Liquid water converts into ice through condensation process. ()

B What are the results of each of the following :

- (1) The formation of a specific enzyme by a gene.
- (2) Variation in the arrangement of nucleotides on DNA
- (3) Accumulation of small ice crystals within the clouds during thunder storms.
- (4) Increasing pressure on sediments.

2

Giza Governorate

Agouza Moderate

Answer the following questions :

Question 1

A Complete the following sentences :

- (1) The only liquid nonmetal is
- (2) The food relationship between lion and deer is

B Give reason :

- (1) Sodium $_{11}\text{Na}$ is metal.
- (2) The human hair colour is hereditary trait.
- (3) Occurrence of spherical weathering for granite rock.
- (4) The weightlifter doesn't do any work while he is in standing position.

Question 2

A Write the scientific term for each of the following statements :

- (1) The shortest straight path connecting between the starting point and the end point in a constant direction.
- (2) A group of individuals of the same species that live in a particular place.

B (1) Write the importance of each of the following :

1- The genes.

2- Lactic acid.

(2) A weight of an object is 200 N at height 5 m, **Calculate the potential energy.**

Question 3

A Choose the correct answer :

(1) The number of chromosomes in human somatic cells is (11 / 46 / 20)

(2) The founder of the science of genetics is (Beadle / Mendel / Arrhenius)

B What is the result of :

(1) The limestone rock subjected to pressure and heat beneath the Earth's surface.

(2) Speed of moving object increase to double according to its kinetic energy.

(3) Put blue and red litmus strips in distilled water.

(4) When the temperature of the clouds is below the freezing point.

Question 4

A Put (✓) or (X) for each statement :

(1) The cubic-shaped watermelons is a spontaneous mutation. ()

(2) The base of the energy pyramid occupied by producers. ()

B Compare between :

(1) A person with six fingers **and** production of featherless chickens
"According to : Type of mutation".

(2) Gabbro **and** quartzite "According to : Type of rock".

(3) Acidic solution **and** alkaline solution "According to : pH value".

(4) Metal **and** nonmetal "According to : Having luster".

3 Alexandria Governorate Al-Gomrok Educational Administration

Answer the following questions :

Question 1

A Complete the following :

(1) The molecular formula of the carbonate group is, while the molecular formula of the sulphate group is

(2) The reaction between acids and alkalis produces and

B Give a reason for each of the following :

(1) Litmus paper doesn't affected by distilled water.

(2) The work done by the car is less than the work done by the truck.

- (3) Carbon is used in the manufacture of dry cells, although it is a nonmetal.
 (4) The ability to read and write is not a genetic trait.

Question 2

A Choose the correct answer :

- (1) The potential energy of an object depends on
 (a) its weight and speed.
 (b) its weight and mass.
 (c) its speed and height above the ground.
 (d) its weight and height above the ground.
- (2) Each chromosome composed of two strands connected by
 (a) histone. (b) centromere. (c) nucleotide. (d) gene.

B Compare between each of the following :

- (1) Type of teeth in the mouth of rabbits **and** tigers.
 (2) The effect of carbon dioxide gas **and** the effect of ammonia gas on wet litmus strips.
 (3) Sandstone **and** granite "According to : Their type".
 (4) Evaporation **and** condensation "According to : The change in water states".

Question 3

A Put (✓) in front of the right sentence or (X) in front of the wrong one :

- (1) The chemical formula of hydrosulphuric acid is H_2SO_4 ()
 (2) The number of chromosomes in human is 46 and in corn is 32 ()

B Answer the following :

- (1) A person pushed an object with a force of 40 newton and it moved in a straight line a displacement of 10 meters.
 1- **Write** the mathematical relation between force, work and displacement.
 2- **Calculate** the amount of work done.
- (2) **Mention the nutritional relationships between the following living organisms :**
 1- The remora fish that sticks to the shark's body and gets its food remains without affecting the shark.
 2- The falcon that hunts mice.

Question 4

A Write the scientific term for each of the following statements :

- (1) Mutation occurs by the effect of human intervention.
 (2) An atomic group carries a positive charge.

B What happens if :

- (1) The pH of a compound changed from 5 to 8
- (2) The speed of the object is doubled, while its mass remains constant
"According to : Its kinetic energy".
- (3) Limestone subjected to heat and pressure.
- (4) Water surfaces on Earth are subjected to the heat of the Sun.

4 Qalyubia Governorate

Banha Educational Administration

Answer the following questions :

Question 1

A Write the scientific term for each of the following statements :

- (1) A mixture composed of the melts of two metals or more.
- (2) The type of oxide produced from burning fossil fuels in cars and factories.

B Complete the following statements :

- (1) A solution of pH value of 6 is considered a weak
- (2) The chemical formula of the nitrate group is
- (3) is from the factors that affects the work done on an object.
- (4) is the food relationship between two living organisms in which one organism benefits and the other is harmed.

Question 2

A Put (✓) or (x) for each statement :

- (1) At the highest point of ball of simple pendulum, kinetic energy is maximum. ()
- (2) Gravity is from factors that affects in water cycle. ()

B (1) Give a reason for each of the following :

- 1- Acid turns the blue litmus strip into red.
- 2- Aluminum is harder than both magnesium and sodium.

(2) What is meant by each of the following :

- 1- A train covers 100 km in 2 hours.
- 2- Decomposer.

Question 3

A Choose the correct answer :

- (1) Molecular formula of hydrobromic acid is (H_2Br / HBr / HBrO_3 / HBrO_4)
- (2) salt has green colour. (NiCl_2 / CuSO_4 / ZnSO_4 / Na_2CO_3)

B (1) What happens when :

- 1- The mass of an object is doubled and its height from ground decreases to half "According to : Potential energy".
- 2- The number of primary consumers in ecosystem increases "According to : The number of producers".

(2) Mention one example for each of the following :

- 1- An inherited trait.
- 2- Metamorphic rock.

Question 4

A Cross out the odd word :

- (1) Joule / Newton / Weight / Second.
- (2) Freezing / Condensation / Cooling / Evaporation.

B (1) Compare between each of the following :

P.O.C	Eukaryotic organisms	Prokaryotic organisms
Chromosome exists in		

- (2) **Calculate** the kinetic energy of a ball with a mass 4 kg moving at a speed of 2 m/s

5 Sharqia Governorate

Science Inspectorate

Answer the following questions :

Question 1

A Put (✓) or (X) for each statement :

- (1) Sulphur is used in dry cells. ()
- (2) The molecular formula of nitric acid is HNO_3 while sulphuric acid is H_2S ()

B What is meant by :

- (1) Metals.
- (2) Acid.
- (3) Energy.
- (4) Predation.

Question 2

A Write the scientific term for each of the following :

- (1) The distance covered per unit time.
- (2) The process of water loss from plants in form of water vapour.

B (1) Give reason for :

- 1- The nucleic acid DNA is known as the double helix.
- 2- Acids turn blue litmus strip to red.
- 3- Magnesium $_{12}\text{Mg}$ is a metallic element while sulphur $_{16}\text{S}$ is a nonmetallic element.

- (2) Moving an object for 3 m requires work equals 2600 J,
Calculate the force required to perform this work.

Question 3

A What happens if :

- (1) Sunlight doesn't reach the Earth's surface.
(2) Decomposers disappear from ecosystem.

B Give one example :

- (1) Beneficial mutation. (2) * Harmful mutation.
(3) A sedimentary rock. (4) A salt soluble in water.

Question 4

A Choose the odd word out :

- (1) Limestone / Marble / Sandstone / Claystone.
(2) Distance / Height / Speed / Displacement.

B (1) What is the hypothesis which the two scientists Beadle and Tatum affirmed?

(2) Mention one importance for each :

- 1- Water. 2- Wind in the water cycle.
3- * Root nodular bacteria to bean plants.

6

Menofia Governorate

Shebin El-kom Administration

Answer the following questions :

Question 1

A Complete the following sentences :

- (1) When magnesium, as a metal, reacts with oxygen, it forms oxide.
(2) The molecular formula of hydrochloric acid is

B Give reasons for the following :

- (1) Acids turn blue litmus paper into red.
(2) Phosphorus cannot be used in the manufacture of dry cell.
(3) When the speed of an object increases to double, the kinetic energy increases four times.
(4) Cockroaches are considered scavenging organisms.

Question 2

A Put (✓) or (X) for each statement :

- (1) The kinetic energy of an object becomes zero when it reaches its maximum height. ()
- (2) Metamorphic rocks are formed due to melting of the minerals that make up the rocks. ()

B What happens when :

- (1) The strength of the metallic bond increases.
- (2) The stomach secretes hydrochloric acid.
- (3) The body's height above the ground increases to double and its mass decreases to half "Relative to : Its potential energy".
- (4) The absence of one of the living organisms present in a balanced ecosystem.

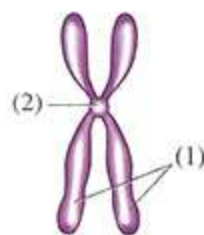
Question 3

A Choose the correct answer :

- (1) The strength of basic solutions increases as the pH value approaches
(a) 7 (b) 0 (c) 4 (d) 14
- (2) All the following solutions are good conductor of electricity, except
(a) NaCl (b) H_2SO_4 (c) NaOH (d) HNO_2

B Answer the following :

- (1) Calculate the kinetic energy of an object with a mass of 27 kg and a velocity of 2 m/s
- (2) In the opposite figure :
(1) represents :
(2) represents :
- (3) What is meant by induced mutations ?
- (4) What are the processes that lead to the formation of igneous rocks ?



Question 4

A Write the scientific term :

- (1) The transformation of rocks from one type to another through several processes such as weathering, erosion, pressure and heat.
- (2) The position where the kinetic energy of a moving pendulum is greatest.

B Answer the following :

- (1) What is the type of nutritional relationship between the plover and the Nile crocodile ?

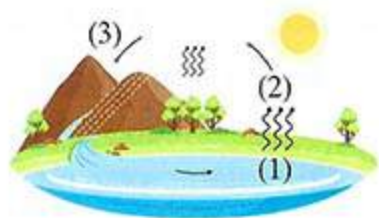
(2) Create a food chain from the following organisms :

(Locusts - Grass - Snakes - Bacteria - Hawks)

(3) What is the idea of desalination of seawater ?

(4) Study the opposite figure and answer :

The process number (3) is carried out
by



7 Al-Gharbia Governorate

General Supervision of Science

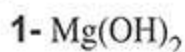
Answer the following questions :

Question 1

A Complete the following statements :

- (1) The bronze alloy is characterized by being more than copper and to rust.
- (2) The number of hydrogen atoms in the acid molecule equals the charge of the that forms it, while the number of hydroxide groups in the base molecule equals the charge of the that forms it.

B (1) Write the name of each of the following :



- (2) 1- A body with a potential energy of 240 joule at a height of 12 meters.
Calculate the weight of the body.

2- Classify the following as hereditary traits, acquired traits or instinctive behaviour :

1. Spider waving its net.
2. The short legs of the arctic fox.

Question 2

A Put (✓) or (X) for each statement :

- 1- Forms of precipitation include rain, snow and hail. ()
- 2- A train that covers a distance of 200 km in 150 min its speed is 90 km/h ()

B Give reasons for each of the following :

- (1) Calcium $_{20}\text{Ca}$ is a metal while chlorine $_{17}\text{Cl}$ is a nonmetal.
- (2) Sodium chloride salt is an ionic compound.
- (3) A person pushing against a wall does not perform work.
- (4) Smooth hair is considered a hereditary trait, while learning to swim is an acquired trait.

Question 3

A Cross out the odd word and then mention the relation between the rest :

- (1) Sodium chloride / Nickel chloride / Silver chloride / Copper sulphate.
- (2) HNO_3 / HClO_2 / H_2SO_4 / HCl

B What happens when :

- (1) Two cars (1) and (2) move at different speeds and have the same mass
"According to : Kinetic energy".
- (2) Decrease in the number of secondary consumers.
- (3) The difference in the arrangement of the nucleotides on DNA
- (4) Water freezes in cracks between rocks.

Question 4

A Choose the correct answer :

- (1) A work equals 150 kJ is done to lift an object its mass is 50 kg to a height h from the surface of the ground, the height h equals
(a) 30 km (b) 300 m [Gravitational field intensity = 10 N/kg]
(c) 1500 m (d) 1500 km
- (2) The rock cycle is a model that illustrates
(a) the unchanging of rocks. (b) how magma is formed.
(c) how sediments are formed. (d) transformations of rocks.

B What is meant by :

- (1) Weathering. (2) Water cycle.
- (3) Centromere. (4) Food webs.

8 Dakahlia Governorate

Educational Directorate

Answer the following questions :

Question 1

A Complete the following statements :

- (1) Acid reacts with forming and water.
- (2) Ammonia is gas, but carbon dioxide is gas.

B (1) Compare between ammonium chloride and sodium carbonate in the table :

P.O.C	Ammonium chloride	Sodium carbonate
1- Value of pH		
2- Chemical formula of the anion		

- (2) 1- A person pushes an object with a force of 20 N causing it to move in a straight line over a distance 50 m in the same direction of the force, **Calculate the work done.**
- 2- **Give an example for** spontaneous mutation.

Question 2

A Put (✓) or (X) for each statement :

- (1) The summation of potential and kinetic energies of a moving object is constant value. ()
- (2) Yellowstone National Park is a good example of chemical weathering. ()

B (1) Give reasons :

- 1- Melting point of $_{13}\text{Al}$ = 660°C but melting point of $_{11}\text{Na}$ = 98°C
- 2- Magnesium oxide MgO is basic oxide.

- (2) 1- **Calculate** the kinetic energy of an object of mass 12 kg moving with a speed of 1 m/s
- 2- * **Explain** the relation between root nodular bacteria **and** bean plants.

Question 3

A Write the scientific term :

- (1) Process of the conversion of the wastes into new usable substances.
- (2) Substances whose colour differs in acidic medium from that in alkaline medium.

B (1) Classify the following according to the table :

(Learning languages - Blood type – Hair colour - Bat sleeping upside down)

Genetic traits	Acquired traits	Instinctive behaviours
.....		
.....		

- (2) **What happen when** the speed of moving object is doubled while its mass remains constant ?
- (3) **Give example of** plutonic igneous rock.

Question 4

A Choose the correct answer :

- (1) Potential energy of an object depends on
- (a) its weight and speed.
- (b) its speed and height above the ground.
- (c) its weight and mass.
- (d) its weight and height above the ground.

(2) The three types of rocks are classified according to

- (a) the way they are formed.
- (b) the depth at which they are found.
- (c) their chemical properties.
- (d) their relative age.

B (1) 1- **What** are the sources of water vapour in nature ? (Give two)

2- **What** processes lead to formation of limestone into marble rock ?

(2) 1- **What happens when** increasing number of primary consumer in food chain ?

2- **Complete the diagram :**



9 Ismailia Governorate

Science Inspectorate

Answer the following questions :

Question 1

A Write the scientific term :

(1) A nonmetal element which is good conductor for electricity.

(2) An acid accumulates in the muscles of human body causing muscle cramps.

B **What happens when :**

(1) A metal melt is added to another metal melt.

(2) Putting a piece of sulphur between the 2 points

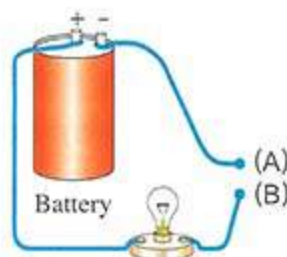
(A) and (B) shown in the opposite figure

"According to : The lamp illumination".

(3) The difference in the arrangement of nucleotides on DNA

(4) The speed of a moving object increases

"According to : Its KE".



Question 2

A Choose the correct answer :

(1) The work done is determined by the relation

(a) force $\times$ displacement.

(b) force / displacement.

(c) mass $\times$ gravity.

(d) $\frac{1}{2} mv^2$

- (2) The conversion of water from solid state to liquid state is called
- (a) condensation. (b) evaporation.
(c) melting. (d) precipitation.

B Give reasons for the following :

- (1) The bear animal is an omnivore.
(2) The person who pushes a wall doesn't exert work.
(3) The red litmus strip changes into blue when placed in sodium hydroxide NaOH
(4) Chlorine ${}_{17}\text{Cl}$ is a nonmetallic element.

Question 3

A Complete the following sentences :

- (1) gas removes the colour of wet litmus strip.
(2) Weak acids are conductors of electricity.

B Mention an example for each of the following :

- (1) An igneous rock. (2) A factor affects the KE
(3) A genetic trait. (4) A herbivore animal.

Question 4

A Put (✓) in front of right sentence and (X) in front of wrong ones :

- (1) Limestone is a sedimentary rock. ()
(2) A train covers a distance of 100 km in 1 hour, so its speed = 10 km/h ()

B Answer the following questions :

- (1) **What** is the relationship between crocodile and plover bird ?
(2) **Form a food chain from the following organisms :**

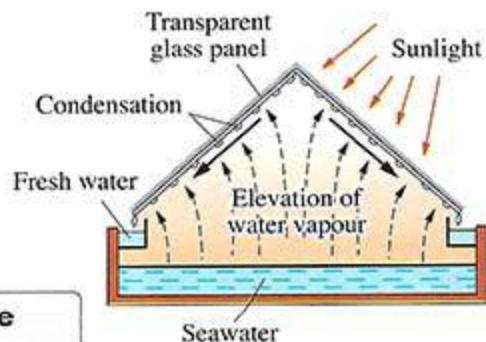
(Snake - Rabbit - Plant - Eagle)

- (3) The opposite figure represents one of the devices used in remote areas,

What is this device used for ?

- (4) **Complete the following comparison shown in the table :**

	Marble	Sandstone
Type of rock		



Answer the following questions :

Question 1

A Choose the correct answer :

(1) Which element is liquid metal at room temperature ?

- (a) Iron. (b) Mercury. (c) Copper. (d) Zinc.

(2) Which of these acids is responsible for digestion in the stomach ?

- (a) H_3PO_4 (b) HNO_3 (c) HCl (d) H_2CO_3

B Answer the following questions :

(1) **Give reason** : The bronze alloy is used in jewellery and statues instead of copper metal.

(2) **What happens when** : A red litmus strip is placed in a beaker containing sodium hydroxide solution?

(3) **What is meant by** : Mechanical energy of an object equals 100 J ?

(4) **Mention the type of** nutritional relationship between plover bird and crocodile.

Question 2

A Put (✓) or (X) in front of the following statements :

(1) The kinetic energy of an object at rest equals zero. ()

(2) Ice in polar regions melts when it loses thermal energy and converts into water. ()

B Answer the following questions :

(1) **Write** the chemical formula for lithium hydroxide.

(2) **Mention one example** for a salt solution with pH greater than 7

(3) **Calculate** the potential energy of an object its weight is 6 N located at a height of 3 m above the ground.

(4) From the following living organisms, **Create a food chain** :

(Snake - Grass - Rabbit - Eagle)

Question 3

A Cross out the odd word :

(1) Lithium / Sodium / Calcium / Carbon.

(2) Sodium hydroxide / Baking soda / Hand soap / Vinegar.

B Compare between each of the following :

- (1) Speed **and** work (Its measuring units).
- (2) Producers **and** consumers (Example only).
- (3) Marble **and** limestone (Type of rocks).
- (4) Genetic traits **and** instinctive behaviours (Example only).

Question 4

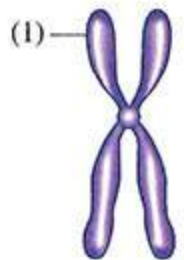
A Write the scientific term :

- (1) The process of breaking down and fragmenting the rocks, which may take millions of years.
- (2) The total length of any path taken by the object during its moving from the starting point to the end point.

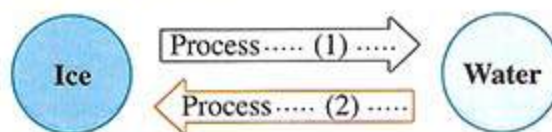
B (1) Complete the following :

* From the opposite figure :

- 1- This figure represents
- 2- The number (1) refers to



(2) Complete the following diagram :



Answer the following questions :

Question 1

A Choose the correct answer :

- (1) What is the ion whose percentage in the solution increases when an acidic oxide dissolves in water ?
Ⓐ H^+ Ⓑ OH^- Ⓒ Cl^- Ⓓ Na^+
- (2) Millions of nucleotides come together directly, forming
Ⓐ chromosomes. Ⓑ chromatids. Ⓒ genes. Ⓓ histones.

B Give reason for :

- (1) Litmus paper is not suitable for distinguishing between strong and weak acids.
- (2) Smooth hair is considered a hereditary trait, while learning to swim is an acquired trait.

- (3) Limestone is very important in the treatment of bone fractures.
 (4) A person pushing against a wall does not perform work.

Question 2

A Put (✓) or (X) :

- (1) Hyenas and vultures are considered decomposers, as they feed on the remains of dead organisms. ()
 (2) The rate of evaporation in tropical regions is faster than that in polar regions. ()

B State one importance for each of the following :

- (1) Milk of magnesia (magnesium hydroxide).
 (2) Chromosomes.
 (3) Graphite.
 (4) * Root nodular bacteria to bean plant.

Question 3

A Write the scientific term :

- (1) Rock fragments transported away from the area in which weathering occurred.
 (2) The science that studies the transmission of genetic traits from parents to offspring.

B What happens when :

- (1) The cloud temperature is below freezing point.
 (2) Adding drops of acid to a piece of limestone.
 (3) The height of the object above the surface of the ground is doubled with constant weight "**Regarding** : Its potential energy".
 (4) Mixing molten copper with molten tin.

Question 4

A Correct the underlined words :

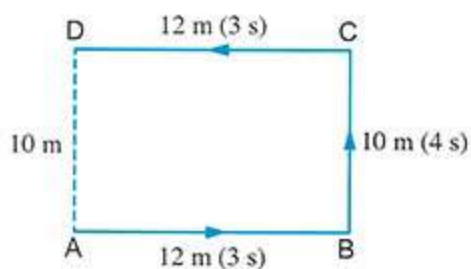
- (1) Dependent variables remain constant throughout the experiment.
 (2) Harmful mutations cause the appearance of desirable traits.

B Problem :

A body moves 12 meters east in 3 seconds, then moves 10 metres north in 4 seconds, then moves 12 metres west in 3 seconds.

Calculate :

- (1) Total distance. (2) Displacement.
 (3) Speed.
 (4) If the body returns back to starting point, **Calculate** the displacement.



Answer the following questions :

Question 1

A Correct the underlined part :

- (1) The chemical formula for sulphurous acid is H_2SO_4
(2) The pH value of NaCl solution is greater than 7

B Answer the following questions :

- (1) 1- **Give reason** graphite is used in the manufacture of electrical poles (dry electrodes).
2- **Calculate** : The potential energy of a body with a mass of 6 kg at the Earth's surface when it is at a height of 5 m [Acceleration of gravity = 10 N/kg]
(2) **Write the names of the following compounds :**
1- $Mg(OH)_2$:
2- HNO_3 :
(3) In the opposite figure,
What is the type of nutritional relationship?



Question 2

A Choose the correct answer :

- (1) Natural sources of water vapour include
(a) evaporation of water from bodies of water.
(b) transpiration.
(c) evaporation of sweat.
(d) All of the above.
(2) When conducting an experiment to study the effect of changing the amount of water on plant growth, the independent variable is
(a) amount of water. (b) amount of light.
(c) type of soil. (d) plant growth.

B State the importance (or use) of each of the following :

- (1) pH meter. (2) The High Dam.
(3) Lactic acid. (4) Dotted beetles (ladybugs).

Question 3

A Write the scientific term for the following :

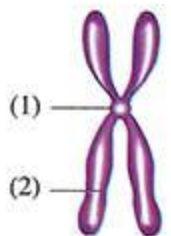
- (1) The process of converting waste into new usable materials.
- (2) Rain leads to the erosion of all building stones and irritation of the respiratory system.

B Answer the following questions :

- (1) **When** does snow fall instead of rain?
- (2) **What happens when** predators disappear in a balanced ecosystem?
- (3) **What is meant by** saying that the distance heba travels from home to school is 200 m ?
- (4) From the opposite figure,
Replace the numbers with the correct labels :

(1) :

(2) :



Question 4

A Complete the following sentences :

- (1) When rocks deep within the Earth are exposed to high pressure and heat without melting, the rocks are formed.
- (2) Factors affecting kinetic energy are and

B Compare between both of them :

(1)	Point of comparison	Mechanical weathering	Chemical weathering
	Chemical change		
(2) *	Point of comparison	Muscular dystrophy	Spinal deformity
	Effect of mutation		
(3)	Point of comparison	Sandstone	Gabbro rock
	Type of rock		

Answer the following questions :

Question 1

A Choose out the odd compound or word :

- (1) Eye colour / Hair colour / Driving car / Height.
- (2) NaOH / NaNO₃ / CuSO₄ / KCl

B Give reason :

- (1) The crystals of surface igneous rocks are small in size.
- (2) A food chain can't start with a horse.
- (3) Recycling of some metals.
- (4) Kinetic energy of an object increases during its fall from a height despite its mass remaining constant.

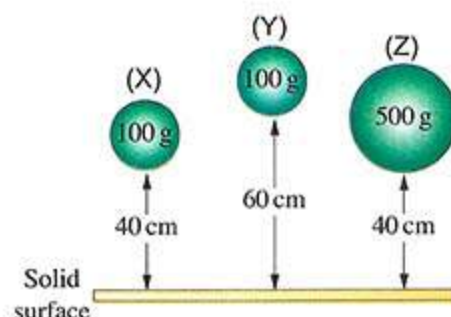
Question 2

A The opposite figure shows falling the three objects to the ground from different height.

[Gravitational field intensity = 10 N/kg]

Put (✓) or (X) :

- (1) The potential energy of ball (X) is greater than the potential energy of ball (Z). ()
- (2) The impact of ball (Y) with the ground produces louder sound than the impact of ball (Z). ()



B What is meant by :

- (1) Lava.
- (2) Centromere.
- (3) Mutualism.
- (4) Universal indicator.

Question 3

A Choose the correct answer :

- (1) Herbivores from organisms.
(producers / consumers / scavengers / decomposers)
- (2) The right name of H₂SO₃ is acid.
(hybochlorous / hybochloric / sulphurous / sulphuric)

B Complete the following statements :

- (1) Solid salts are conductors of electricity.
- (2) A person pushes an object with a force equals 20 newton it moves a distance 50 meters, so the work done = joule.
- (3) Formation of clouds and rains by and processes.
- (4) As the number of valence electrons in the metal atom, the strength of the metallic bond will decrease.

Question 4

A Correct the underlined word :

- (1) Sulphur oxides can dissolve in water vapour of atmosphere forming alkaline rains.
- (2) A body covers 100 km in two hours so it's speed equals 200 km/h

B What happens when :

- (1) Removing the grasses from the balanced ecosystem.
- (2) Sandstone is exposed to extreme pressure and heat.
- (3) Lactic acid accumulates in the muscles of the human body.
- (4) Accumulation of small ice crystals within clouds during thunder storms.

14 Fayoum Governorate

Science supervision for governmental language school

Answer the following questions :

Question 1

A Cross out the odd word :

- (1) Graphite / Bromine / Phosphorus / Sulphur.
- (2) Iodine / Sulphur / Carbon / Hydrogen.

B State the importance of each of :

- (1) Graphite.
- (2) Lactic acid.
- (3) * Demolition (wrecking) ball.
- (4) Energy pyramid.

Question 2

A Choose from column (B) what suits it from column (A), then complete sentence :

(A)	(B)
(1) The percentage of land in the Earth's composition.	(a) 40 J (b) 45 J
(2) The kinetic energy of a ball with a mass of 10 kg moving at a speed of 3 m/s	(c) 71% (d) 29%

B Compare between :

- (1) Phosphorus and iron “In terms of : Metallic luster”.
- (2) Magnesium chloride and ammonium nitrate “In terms of : Cation”.
- (3) Infiltration and surface runoff.
- (4) Kinetic energy and potential energy “In terms of : Definition”.

Question 3

A Write the chemical formula for the following compounds :

- (1) Hydrosulphuric acid.
- (2) Potassium hydroxide.

B Give reasons for :

- (1) The work done by the car is less than the work done by the truck, even though their speeds are equal.
- (2) The Sun and gravity maintain the continuity of the water cycle.
- (3) Plant is a producer.
- (4) Hyenas and vultures are considered scavengers.

Question 4

A Give an example for :

- (1) Spontaneous mutation in human.
- (2) Igneous rocks.

B What happens when :

- (1) Water flows between rocks.
- (2) The temperature of the minerals that make up the rock rises during the day.
- (3) The absence of one of the living organisms present in a balanced ecosystem.
- (4) A decrease in the number of secondary consumers.

15 Beni-Suef Governorate

Educational Administration

Answer the following questions :

Question 1

A Choose the correct answer :

- (1) Bromine and mercury are similar in the
 - (a) colour.
 - (b) physical state.
 - (c) boiling point.
 - (d) heat conductivity.

(2) Which of the following represents bronze ?

- Ⓐ An alloy and a compound.
- Ⓑ An alloy and a mixture.
- Ⓒ A nonmetal with a compound.
- Ⓓ A metal with a mixture.

B Write the scientific term :

- (1) The location where genetic material is found in prokaryotic cells.
- (2) The distance covered per unit time.
- (3) Magma when it emerges to the Earth's surface after losing gases mixed with it.
- (4) The compound formed through the combination of an alkali cation with an acid anion.

Question 2

A Complete the following :

- (1) Limestone is a rock, while marble is a rock.
- (2) The total length of any path taken by the object during its movement from the starting point to the end point is known as and its measuring unit is

B (1) Calculate the potential energy of an object its mass is 2 kg lifted to a shelf 2 m above the ground surface. [Gravitational field intensity = 10 N/kg]

(2) Give reason for each :

- 1- The ladybugs are used in biological control.
- 2- The difference in pH values of sodium hydroxide from sodium chloride solutions.
- 3- It is not possible to drown in the Dead Sea.

Question 3

A State the number which indicates each of the following :

- (1) The number of elements forming bronze alloy.
- (2) The number of elements forming sodium nitrate salt.

B (1) Mention :

- 1- Two sources of water vapour in nature.
- 2- The factors affecting the kinetic energy.

(2) Correct the underlined word :

- 1- Oxygen flows among living organisms in food chains.
- 2- Consumers occupy the first trophic level.

Question 4

A Put (✓) or (X) :

- (1) The unit of measurement for kinetic energy is newton. ()
(2) The chemical energy present in food and fuel is stored potential energy. ()

B (1) Give one example for each :

- 1- A sedimentary rock.
2- Genetic trait.

(2) State one difference between :

- 1- Plutonic igneous rocks and surface igneous rocks.
2- Spontaneous mutations and induced mutations.

16 El-Menia Governorate

Science guidance

Answer the following questions :

Question 1

A Complete the following sentences :

- (1) The bronze alloy is formed by adding metal to metal.
(2) The reaction between acids and alkalis produce and

B State one importance for each of the following :

- (1) Milk of magnesia. (2) Indicators.
(3) * Demolition (wrecking) ball. (4) Decomposers in the ecosystem.

Question 2

A Correct the underlined word :

- (1) Work equals 40 joule is done when a force equals 80 newton is applied to move an object vertically upwards for a distance 2 meters.
(2) Erosion is process of breaking down and fragmentation of the rock.

B Give reason for :

- (1) Graphite is used in dry cells despite being a nonmetal.
(2) Ammonium chloride solution is acidic.
(3) The kinetic energy of a truck is greater than the kinetic energy of a car when their speed are equal.
(4) * The relationships between root nodular bacteria and bean plants is considered mutualism.

Question 3

A Choose the correct answer :

- (1) The molecular formula of carbonic acid is
Ⓐ H_2SO_4 Ⓑ HClO_2 Ⓒ H_2CO_3 Ⓓ H_2S
- (2) Which of the following is the correct arrangement of the hardness of sodium $_{11}\text{Na}$, magnesium $_{12}\text{Mg}$ and aluminum $_{13}\text{Al}$
Ⓐ $\text{Na} > \text{Mg} > \text{Al}$ Ⓑ $\text{Al} > \text{Mg} > \text{Na}$ Ⓒ $\text{Mg} > \text{Na} > \text{Al}$ Ⓓ $\text{Al} > \text{Na} > \text{Mg}$

B What happens when :

- (1) The weight of the object is doubled at constant height
"Regarding : Its potential energy".
- (2) Decreasing of food resources for individuals of the same species.
- (3) The formation of specific enzyme by a gene.
- (4) Placing a cup of water in a sunny place for several hours.

Question 4

A Put (✓) or (X) :

- (1) The measurement unit for kinetic energy is newton. ()
- (2) Quartzite is from examples of metamorphic rocks. ()

B Compare between each of the following :

- (1) Spontaneous mutation and induced mutation "Concerning to : Definition".
- (2) Herbivores and carnivores (Give one example).
- (3) Condensation and evaporation "Concerning to : Definition".
- (4) Limestone and granite "Concerning to : The type of rocks".

17 Assuit Governorate

Educational Administration

Answer the following questions :

Question 1

A Choose the correct answer :

- (1) Sodium chloride salt is an compound.
Ⓐ covalent Ⓑ alkaline Ⓒ polar Ⓓ ionic
- (2) The three types of rocks are classified according to
Ⓐ the way they are formed. Ⓑ their chemical properties.
Ⓒ the depth at which they are found. Ⓓ their relative age.

B (1) Mention one use of each of the following :

- 1- Bronze alloy.
- 2- Universal indicator.

(2) Give one example of each of the following :

- 1- Nonmetal good electrical conductors.
- 2- Beneficial mutation in human.

Question 2

A Put (✓) or (X) :

- (1) The chromosome is chemically composed of DNA and protein. ()
- (2) Evaporation of water occurs when it comes into contact with a cold surface. ()

B (1) Complete the following sentences :

- 1- is the process of breaking and fragmenting rocks, while is the transport of sediments from one location and their sedimentation in another.
- 2- The water is stored beneath the Earth's surface.

(2) Compare between :

- 1- Mutualism **and** predation (Give one example for each).
- 2- Acidic oxides **and** basic oxides "**According to** : The result of their dissolution in water".

Question 3

A Extract the odd word out :

- (1) Gold / Silver / Bromine / Mercury.
- (2) Sandstone / Marble / Limestone / Claystone.

B (1) Give reasons for the following :

- 1- Eye colour is a genetic trait.
- 2- Alkalis turn red litmus paper into blue.

(2) Problem :

A body moves 10 meters east in 4 seconds, then moves 8 meters north in 2 seconds,

Calculate :

- 1- Total distance.
- 2- Body speed.

Question 4

A Write the scientific term :

- (1) Consists of living organisms and non-living components.
- (2) The energy stored in the object as a result of the work done on it.

B (1) Correct the underlined word :

- 1- Increase in the number of primary consumers leads to constant in the number of producers.
- 2- The mechanical energy of a freely falling object equals sound energy at the moment it reaches the ground.

(2) Problem :

A body with a mass of 8 kg is moving at a speed of 4 m/s,

Calculate the kinetic energy of the body if the mass is doubled at constant speed.

Answer the following questions :

Question 1

A Complete the following sentences :

- (1) The metallic bond is formed due to the attraction between positive of metal and the cloud of valence negative..... surrounding it.
- (2) is the measuring unit of work while newton is the measuring unit of

B (1) Write the chemical formula :

- 1- Nitrous acid.
- 2- Potassium hydroxide.

(2) Write the name of the chemical formula :

- 1- Mg(OH)_2
- 2- H_3PO_4

Question 2

A Put (✓) or (X) for the following statements :

- (1) Beneficial mutations cause the appearance of desirable traits. ()
- (2) Weathering is the process of disintegrating and breaking down rocks. ()

B What happens when :

- (1) An increase in the number of primary consumers.
- (2) Accumulation of lactic acid in muscles.
- (3) Placing two red and blue wet litmus paper in a tube containing carbon dioxide gas.
- (4) Knocking on a piece of graphite.

Question 3

A Choose the correct answer :

- (1) All the following from ions that form salts, except (NO_3^- / NH_4^+ / Cl^- / OH^-)
- (2) Metamorphic rocks are formed through the processes of
(melting and crystallization / transportation and sedimentation /
heat and pressure / erosion and weathering)

B (1) Answer :

A body with a potential energy of 240 joules at a height of 12 meters,
Calculate the weight of the body.

(2) **What is meant by :**

1- Potential energy.

2- The food chain.

Question 4

A Write the scientific term :

- (1) The relationship of the predator that benefits from the nutritional relationship with the prey that is harmed or loses its life.
- (2) Found in form of strips or dyes it can differentiate between acids and alkalis, or between different acids, or different alkalis, according to their strength.

B (1) Give a reason for each of the following :

1- DNA is known as a double helix.

2- The work done by the car is less than the work done by the truck,
even though their speeds are equal.

(2) **Compare between :** Basic oxides and acidic oxides (Definition - Example).

19 Qena Governorate

General Science Supervision

Answer the following questions :

Question 1

A Choose the correct answer :

- (1) The liquid element that has metallic luster is
(a) mercury. (b) bromine. (c) lithium. (d) chlorine.
- (2) The compound which is used in antacids is
(a) MgCl_2 (b) $\text{Mg}(\text{OH})_2$ (c) H_2CO_3 (d) NaCl

B Give a reason for each of the following :

- (1) Calcium $_{20}\text{Ca}$ is more in hardness than sodium $_{11}\text{Na}$
- (2) Acids turn blue litmus paper into red.
- (3) A person pushing against a wall does not perform work.
- (4) * The nutritional relationship between root nodular bacteria and bean plants is a mutualistic relationship.

Question 2

A Put (✓) or (x) for each statement :

- (1) The kinetic energy of an object is doubled when its speed is doubled. ()
- (2) Quartzite is harder than sandstone. ()

B Give an example for :

- (1) Atomic group carries three negative charges.
- (2) Strong acid.
- (3) Spontaneous harmful mutation.
- (4) A point at which the mechanical energy equals the potential energy.

Question 3

A Write the scientific term :

- (1) Ionic compounds are formed from the combination of an alkali cation with an acid anion.
- (2) Oxides produced from the burning of metals in the presence of oxygen.

B What happens when :

- (1) The speed of a moving object is doubled with constant mass
"Regarding : Its kinetic energy".
- (2) A decrease in the number of secondary consumers.
- (3) A person suffering from lactose intolerance eats a piece of milk chocolate.
- (4) Limestone rocks are exposed to heat and pressure.

Question 4

A Cross out the odd word and write the scientific term of others :

- (1) Time / Mass / Speed / Distance.
- (2) Marble / Sandstone / Claystone / Limestone

B Mention one difference between :

- (1) Weathering and erosion
- (2) Herbivores and carnivores
- (3) Evaporation and boiling
- (4) Spontaneous mutation and induced mutation.

Answer the following questions :

Question 1**A Put (✓) or (X) for each statement :**

- (1) Bronze alloy composed of 95% copper and 5% tin. ()
(2) The formula of ammonium group is NH_3 ()

B Give reasons for each of the following :

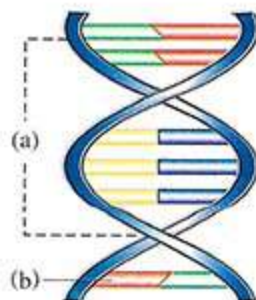
- (1) Graphite is used in dry cells despite being a nonmetal.
(2) It is not possible to differentiate between hydrochloric acid and acetic acid by using litmus paper.
(3) A person pushing a shopping trolley performs work.
(4) The nutritional relationship between plover bird and Nile crocodile is considered a commensalism.

Question 2**A Choose the correct answer for each of the following :**

- (1) A work equals 500 J is done to lift an object to a height 20 m from the surface, its weight is
(a) 10000 N (b) 25 N (c) 480 N (d) 520 N
(2) The percentage of water on the Earth's surface is approximately %
(a) 3 (b) 29 (c) 60 (d) 71

B Variant questions :

- (1) Write one example for a strong alkali.
(2) Write the formula of silver chloride and determine its solubility in water.
(3) Calculate the mass of an object if its kinetic energy 250 J, and moving at a speed of 10 m/s
(4) From the opposite figure :
1- Label (a) represents
2- Label (b) represents



Question 3

A Write the scientific term for each of the following :

- (1) A substance whose dissolution in water leads to an increase in the percentage of H^+ cations in the solution.
- (2) An indicator that can differentiate between different acids or different alkalis according to their strength.

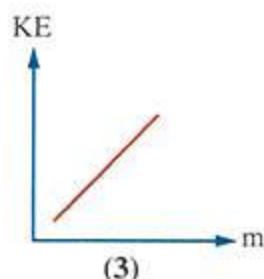
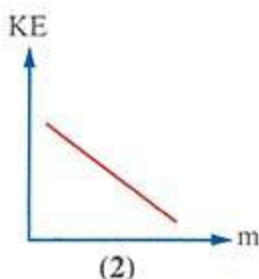
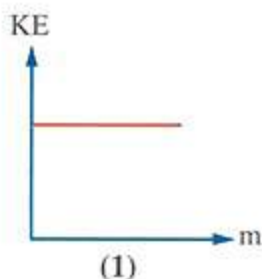
B Compare between :

- (1) Dependent variable and controlled variable (Definition).
- (2) Decomposers and scavengers (One example for each of them).
- (3) Spontaneous mutations and induced mutations (One example for each of them).
- (4) Mechanical weathering and chemical weathering (One cause for each).

Question 4

A Study the following graphs then answer :

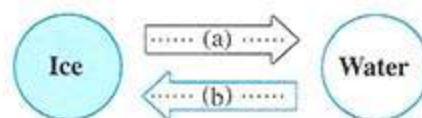
- (1) The graph represents the relation between the kinetic energy of an object (KE) and its mass (m) while its speed remains constant.



(2) Complete the following diagram :

1- (a) represents process.

2- (b) represents process.



B What are the results of each of the following :

- (1) The increase in numbers of primary consumers in a food chain.
- (2) The formation of a specific enzyme by a gene.
- (3) The loss of thermal energy of the water vapour carried by air current that are in contact with the ground surface.
- (4) Physical and chemical changes in the Earth's materials over the years.

Answer the following questions :

Question 1

A Complete the following statements :

- (1) Two hydrogen cations combine with a sulphite anion to form acid and its molecular formula is
- (2) The strength of the alkaline solution increases as the pH value approaches while the strength of the acidic solution increases as the pH approaches

B Identify the odd word and write the scientific term for the rest :

- (1) Mechanical wave / Solidification / Fragmentation / Sedimentation / Crystallization.
- (2) Fox / Falcon / Lion / Rat.
- (3) Driving cars / Reading and writing / Dolphins playing with a ball / Hens laying on eggs.
- (4) Hydroxide / Bicarbonate / Calcium / Phosphate.

Question 2

A Put (✓) or (X) for each statement :

- (1) When the temperature of the clouds is below freezing, snow falls instead of rain. ()
- (2) The production of cube-shaped watermelons is considered an induced mutation. ()

B Give a reason for each of the following :

- (1) The breakdown of the completely filled water bottle when placed in the refrigerator's cooler.
- (2) Genetic traits vary with the arrangement of nucleotides on DNA
- (3) Alloys are preferred in industry instead of pure metals.
- (4) It is not possible to distinguish between hydrochloric acid and acetic acid using litmus paper.

Question 3

A Choose the correct answer :

- (1) A light object with mass m_1 and speed v_1 has the same kinetic energy as another heavier object with mass m_2 and speed v_2

Which of the following relations is correct?

- (a) $m_1 v_1^2 > m_2 v_2^2$ (b) $m_1 v_1^2 < m_2 v_2^2$
 (c) $v_1 < v_2$ (d) $v_1 > v_2$

- (2) Among the organisms that feed on the dead bodies is

- ☐ (a) hyenas.
 ☐ (b) fungi.
 ☐ (c) cockroaches.
 ☐ (d) foxes.

B (1) Write the elements that make up each of the following :

- 1- Bronze alloy.
- 2- Magnesia milk.

- (2) An object with a mass of 8 kg is moving at a speed of 5 m/s

Calculate :

- 1- The kinetic energy of the object.
- 2- Potential energy of the object on the surface of the Earth.

Question 4

A Write the scientific term for the following phrases :

- (1) The process of breaking and fracturing rocks without changing their chemical composition.
- (2) The sum of the potential and kinetic energies of any moving object.

B (1) Write the chemical formula for the following compounds :

- 1- Nitric acid.
- 2- Sodium hydroxide.

(2) What happens to each of the following :

- 1- Potential energy when the weight of the body doubles while the height above the ground remains constant.
- 2- The shortage of food sources for members of the same biological community.
- 3- The sandstone is exposed to extreme heat and pressure.

1**Cairo Governorate Aln Shams Administration****1**

(A) (1) (a)

(2) (b)

(B) (1) An ion composed of more than one atom of more than one element.

(2) The attraction force between positive metal ions and negative valence electron cloud which surrounds them.

(3) The shortest straight path between the starting point and the end point in a constant direction.

(4) Mutations that occur through human intervention.

2

(A) (1) Newton.

(2) 71%

(B) (1) 1- H_2SO_4

2- NaOH

(2) 1- High Dam in Aswan.

2- Root nodular bacteria and bean plants.

3

(A) (1) Potential of hydrogen pH

(2) Alkali (Base).

(B) (1) Because the horse is a herbivore that uses its incisors to cut plants, while the lion is a carnivore that uses its sharp canines to tear the prey.

(2) Because it is formed through rapid cooling of lava on the surface of the Earth's crust.

(3) Because it exists in the form of two strands twisted around each other, forming a double helix.

(4) Due to the increase in its speed during its fall, as the kinetic energy of the object is directly proportional to the square of its speed.

4

(A) (1) ✓

(2) ✗

(B) (1) A chemical reaction occurs, leading to the formation of protein that expresses a specific hereditary trait

(2) This leads to a change in the hereditary trait that this gene is responsible for and hence the appearance of a new trait that did not previously exist, these changes are known as mutations.

(3) Precipitation occurs in the form of hail.

(4) It becomes more cohesive resulting in the formation of solid layers forming sedimentary rocks.

2**Giza Governorate Agouza Moderate****1**

(A) (1) Bromine.

(2) Predation.

(B) (1) Because the outermost energy level of sodium element $_{11}Na$ contains 1 electron.

(2) Because the trait of human hair colour is transmitted from parents to offspring without learning and is inherited from one generation to the next.

(3) Due to chemical weathering of granite rock which is turned into spherical form due to the process of continuous erosion.

(4) Because the displacement equals zero.

2

(A) (1) Displacement. (2) Biotic population.

- (B) (1) 1- They are responsible for the appearance of hereditary traits in living organisms.
2- It provides muscles with the energy during their lack of oxygen during muscular effort.

$$\begin{aligned} \text{(2) PE} &= w \times h \\ &= 200 \times 5 \\ &= 1000 \text{ J} \end{aligned}$$

3

(A) (1) 46 (2) Mendel.

- (B) (1) It transforms into marble rock.
(2) Kinetic energy increases four times.
(3) The blue and red litmus strips don't change.
(4) Snow precipitates instead of rain.

4

(A) (1) X (2) ✓

(B) (1)

A person with six fingers	Production of featherless chickens
Spontaneous mutation	Induced mutation

(2)

Gabbro	Quartzite
Plutonic igneous rock	Metamorphic rock

(3)

Acidic solution	Alkaline solution
pH < 7	pH > 7

(4)

Metal	Nonmetal
Has metallic luster	Doesn't have metallic luster

3

Alexandria Governorate Al-Gomrok Educational Administration

1

(A) (1) $\text{CO}_3^{2-} / \text{SO}_4^{2-}$ (2) Salt / water.

- (B) (1) Because the number of H^+ cations equals the number of OH^- anions in the solution (distilled water).
(2) Because the mass of truck is greater than the mass of car, as the mass increases, its kinetic energy increases.
(3) Because carbon (graphite) is the only nonmetal which is a good electrical conductor.
(4) Because the ability to read and write is acquired from surrounding environment through learning or training and not inherited from parents.

2

(A) (1) (d) (2) (b)

(B) (1)

Rabbits	Tigers
Incisors for cutting plants	Sharp canines for cutting meat

(2)

Carbon dioxide gas	Ammonia gas
It turns wet litmus strip into red	It turns wet litmus strip into blue

(3)

Sandstone	Granite
Sedimentary rock	Plutonic igneous rock

(4)

Evaporation	Condensation
Water changes into water vapour	Water vapour changes into water

3

(A) (1) $\times$ (2) $\times$

(B) (1) 1- $W = F \times s$

$$2- W = 40 \times 10 = 400 \text{ J}$$

(2) 1- Commensalism.

2- Predation.

4

(A) (1) Induced mutation.

(2) Ammonium $(\text{NH}_4)^+$

(B) (1) The acidity of compound decreases and its alkalinity increases.

(2) The kinetic energy of the object increases four times.

(3) It transforms into marble.

(4) It gains heat energy and changes into water vapour.

4

Qalyubia Governorate Banha Administration

1

(A) (1) Alloy.

(2) Acidic oxides.

(B) (1) acid. (2) NO_3^-

(3) Force. (4) Predation.

2

(A) (1) $\times$ (2) $\checkmark$

(B) (1) 1- Because they contain H^+ cations which are responsible for all acidic properties.

2- Because the number of valence electrons in aluminum atom (3) is greater than that in magnesium atom (2) and sodium atom (1), as the number of valence electrons in metal atom increases, the strength

of the metallic bond increases, so it becomes harder.

(2) 1- This means that the speed of train is 50 km/h

2- Living organisms obtain their food from the breaking down of the organic substances found in dead bodies into simpler substances.

3

(A) (1) HBr (2) NiCl_2

(B) (1) 1- The potential energy remains constant.

2- The number of producers will decrease.

(2) 1- The colour of eye.

2- Marble or quartzite.

4

(A) (1) Weight. (2) Cooling.

(B) (1) Nucleus / Cytoplasm.

$$(2) \text{KE} = \frac{1}{2} \times m \times v^2 \\ = \frac{1}{2} \times 4 \times (2)^2 = 8 \text{ J}$$

5

Sharqia Governorate Science Inspectorate

1

(A) (1) $\times$ (2) $\times$

(B) (1) A substance in which the outermost energy level of the atom contains 1, 2 or 3 electrons.

(2) A substance whose dissolution in water increases the percentage of hydrogen cations (H^+) in the solution.

(3) The ability to do work.

- (4) A nutritional relationship between two individuals, one of them benefits (the predator) while the other is harmed or loses its life (the prey).

2

(A) (1) Speed. (2) Transpiration process.

- (B) (1) 1- Because it exists in the form of two strands twisted around each other, forming a double helix.
2- Because acids contain H^+ cations which are responsible for all acidic properties.
3- Because the outermost energy level of magnesium element $_{12}Mg$ contains 2 electrons while the outermost energy level of sulphur element $_{16}S$ contains 6 electrons.

(2) $W = F \times s$

$$F = \frac{W}{s} = \frac{2600}{3} = 866.6 \text{ N}$$

3

- (A) (1) The water cycle will not happen.
(2) The bodies of dead organisms will be accumulated.
- (B) (1) Production of seedless fruits or wheat plants resistant to wheat rust disease.
(2) The severe muscular dystrophy.
(3) Limestone.
(4) Nickel chloride.

4

- (A) (1) Marble. (2) Speed.

- (B) (1) Beadle and Tatum affirmed the one gene-one enzyme hypothesis based on their experiments, which states that each gene produces a specific enzyme responsible for the occurrence of a chemical reaction that leads to the formation of a protein that expresses a specific hereditary trait.
- (2) 1- • It is used in different fields, such as drinking, agriculture, industry, sanitation and hygiene.
• It plays a vital role in regulating the Earth's temperature.
2- It carries water vapour upwards and moves clouds which contain tiny water droplets.
3- It absorbs (fixes) atmospheric nitrogen and supplies bean plant with nitrogenous compounds to build proteins and enzymes.

6

Menofia Governorate Shebin El-Kom Administration

1

- (A) (1) magnesium. (2) HCl
- (B) (1) Because they contain H^+ cations which are responsible for all acidic properties.
(2) Because phosphorus is nonmetal which is bad conductor of electricity.
(3) Because the kinetic energy is directly proportional with the square speed at constant mass.
(4) Because they feed on the remains of dead organisms.

2

(A) (1) ✓

(2) ✗

(B) (1) The metal is harder and its melting point is higher.

(2) It participates in food digestion.

(3) Potential energy remains unchanged.

(4) It leads to a disruption of this ecological balance.

3

(A) (1) (d)

(2) (d)

$$\begin{aligned} \text{(B) (1) } KE &= \frac{1}{2} \times \text{Mass} \times (\text{Velocity})^2 \\ &= \frac{1}{2} \times 27 \times (2)^2 \\ &= 54 \text{ J} \end{aligned}$$

(2) 1- Two chromatids.

2- Centromere.

3- Mutations that occur through human intervention.

4- ① Melting.

② Cooling and crystallization.

4

(A) (1) The rock cycle.

(2) The rest (original) point.

(B) (1) The nutritional relationship is commensalism.

(2) Grass → Locusts → Snakes → Hawks → Bacteria.

(3) It depends on the evaporation and condensation processes of seawater using a seawater desalination device.

(4) The effect of gravity.

7

Al-Gharbia Governorate General Supervision of Science

1

(A) (1) harder / resistant.

(2) anion / cation.

(B) (1) 1- Magnesium hydroxide.

2- Carbonic acid.

(2) 1- $PE = w \times h$

$$\begin{aligned} w &= \frac{PE}{h} = \frac{240}{12} \\ &= 20 \text{ N} \end{aligned}$$

2- 1. Instinctive behaviour.

2. Hereditary trait.

2

(A) (1) ✓

(2) ✗

(B) (1) Because the outermost energy level of calcium element $_{20}\text{Ca}$ contains 2 electrons while the outermost energy level of chlorine element $_{17}\text{Cl}$ contains 7 electrons.

(2) Because it is produced from the reaction of acid with alkali which the alkali cation combines with acid anion forming an ionic compound.

(3) Because the displacement equals zero.

(4) Because smooth hair trait is transmitted from parents to offspring without learning and is inherited from one generation to the next, while learning to swim is acquired from the surrounding environment through learning or training and not inherited from parents.

3**(A)**

	The odd word	The relation between the rest
(1)	Silver chloride	Soluble salts
(2)	HCl	Oxyacids

- (B)** (1) By increasing the speed of the car, the kinetic energy of car increases.
 (2) The number of primary consumers increases and the number of tertiary consumers decreases.
 (3) This leads to a change in the hereditary trait that this gene is responsible for and hence the appearance of a new trait that did not previously exist, these changes are known as mutations.
 (4) It leads to its breaking down and fragmentation, which cause mechanical weathering of the rocks.

4**(A)** (1) **(b)** (2) **(d)**

- (B)** (1) The process of breaking down and fragmenting the rocks, which may take millions of years.
 (2) A natural process involving the movement of water between the atmospheric air and the Earth in a closed multi-path cycle.
 (3) The central point at which the two chromatids of the chromosome are connected.
 (4) The interconnection and overlapping of multiple food chains together.

8**Dakahlia governorate
Educational directorate****1**

- (A)** (1) alkali / salt.
 (2) alkaline (basic) / acidic.
(B) (1) 1- $\text{pH} < 7$ / $\text{pH} > 7$
 2- Cl^- / CO_3^{2-}
 (2) 1- $W = F \times s$
 $= 20 \times 50$
 $= 1000 \text{ J}$
 2- Albino mutation (albinism).

2

- (A)** (1) ✓ (2) ✓
(B) (1) 1- Because the number of valence electrons in aluminum atom (3) is greater than that in sodium atom (1) and as the number of valence electrons in metal atom increases, the melting point increases.
 2- Because magnesium oxide (MgO) dissolves in water forming alkali.
 (2) 1- $\text{KE} = \frac{1}{2} \times m \times v^2$
 $= \frac{1}{2} \times 12 \times (1 \times 1)$
 $= \frac{1}{2} \times 12 = 6 \text{ J}$
 2- The nutritional relationship between them is mutualism, because the bean plants obtain the nitrogenous compounds from the root nodular bacteria to build proteins and enzymes, while root nodular bacteria obtain food and suitable environment from green plants.

3

- (A)** (1) Recycling. (2) Indicators.

(B) (1)

Genetic traits	Acquired traits	Instinctive behaviours
* Blood type. * Hair colour.	* Learning languages.	* Bat sleeping upside down.

(2) The kinetic energy of moving object increases four times, because the kinetic energy is directly proportional to the square speed at constant of mass.

(3) Gabbro or granite.

4

(A) (1) d (2) a

(B) (1) 1- ① The plant is considered a source of water vapour through transpiration process.

② Human and animals are considered sources of water vapour through the evaporation of sweat.

2- By exposure to extreme heat and pressure, limestone transforms into marble.

(2) 1- This leads to a decrease in the number of producers and an increase in the number of the secondary consumers.

2- An enzyme / A chemical reaction / A protein.

9

Ismailia Governorate
Science Inspectorate

1

(A) (1) Carbon (graphite). (2) Lactic acid.

(B) (1) An alloy is formed whose properties differ from those of both metals.

(2) The lamp will not be illuminated, because sulphur is nonmetal and it is bad conductor of electricity.

(3) This leads to a change in the hereditary trait, and hence the appearance of a new trait that didn't previously exist, these changes are known as mutations.

(4) The kinetic energy of moving object increases.

2

(A) (1) a (2) c

(B) (1) Because the bear feeds on both plants and animals.

(2) Because the displacement equals zero.

(3) Because it contains OH^- anions which are responsible for all basic properties.

(4) Because the outermost energy level of chlorine element $_{17}\text{Cl}$ contains 7 electrons.

3

(A) (1) Chlorine. (2) Bad.

(B) (1) Basalt. (2) Speed.

(3) The hair colour. (4) Rabbit.

4

(A) (1) ✓ (2) ✗

(B) (1) The nutritional relationship between them is commensalism, which the plover bird benefits by feeding on leftover food that get trapped between the crocodile's teeth, while crocodile neither benefits nor is harmed.

(2) Plant → Rabbit → Snake → Eagle

(3) It is used for facing the shortage of freshwater resources in remote areas by removing dissolved salts from seawater to convert it into freshwater.

(4) Metamorphic rock / Sedimentary rock.

10 El-Suez Governorate Administration

1

(A) (1) (b) (2) (c)

(B) (1) Because it is harder than copper and resistant to rust.

(2) A red litmus strip turns into blue.

(3) This means that the sum of the potential and the kinetic energies of an object during its motion equals 100 J

(4) The nutritional relationship is commensalism.

2

(A) (1) ✓ (2) ✗

(B) (1) LiOH

(2) Sodium carbonate.

(3) $PE = w \times h$

$$= 6 \times 3 = 18 \text{ J}$$

(4) Grass → Rabbit → Snake → Eagle.

3

(A) (1) Carbon. (2) Vinegar.

(B) (1)

Speed	Work
m/s or km/h	Joule

(2)

Producer	Consumer
Plant	Lion

(3)

Marble	Limestone
Metamorphic rock	Sedimentary rock

(4)

Genetic traits	Instinctive behaviours
① The eye colour.	① The bird builds its nest.
② The human hair colour.	② A bat sleeping upside down.

4

(A) (1) Weathering. (2) Distance.

(B) (1) 1- Chromosome. 2- Chromatid.

(2) 1- Melting. 2- Freezing.

11

Port Said Governorate Science Inspectorate

1

(A) (1) (a) (2) (c)

(B) (1) Because it gives the same colour with both of them.

(2) Because the smooth hair trait is transmitted from parents to offspring without learning and is inherited from one generation to the next, while learning to swim is acquired from the surrounding environment through learning or training and not inherited from parents.

(3) Because it contains calcium carbonate powder, which is used in making casts for treatment of bone fractures.

(4) Because the displacement equals zero.

2

(A) (1) X

(2) ✓

(B) (1) It is used as temporary treatment to neutralize gastric hyperacidity.

(2) They contain the genetic material and transmit genetic traits from parents to offspring.

(3) It is used in manufacture of the dry cells.

(4) It absorbs (fixes) atmospheric nitrogen and provides bean plants with nitrogenous compounds to build proteins and enzymes.

3

(A) (1) Erosion.

(2) Genetics.

(B) (1) Snow precipitates instead of rain.

(2) A chemical change occurs in the limestone, causing corrosion of limestone rock.

(3) Potential energy of the object increases to double.

(4) The bronze alloy is formed.

4

(A) (1) Controlled.

(2) Beneficial.

(B) (1) Total distance (d) = AB + BC + CD
= 12 + 10 + 12
= 34 m

(2) Displacement (s) = AD = 10 m

(3) • $t = 3 + 4 + 3 = 10$ s

• Speed (v) = $\frac{d}{t} = \frac{34}{10} = 3.4$ m/s

(4) Displacement = 0

12

**Kafr El-Sheikh Governorate
Desouk Educational administration**

1

(A) (1) H_2SO_3

(2) equal to 7

(B) (1) Because graphite is the only nonmetal which is a good electrical conductor.

(2) $PE = w \times h$
= $m \times g \times h$
= $6 \times 10 \times 5 = 300$ J

(3) 1- Magnesium hydroxide.
2- Nitric acid.

(4) The type of nutritional relationship is competition.

2

(A) (1) (d)

(2) (a)

(B) (1) It determines pH values of any solutions directly and accurately

(2) It is used in generating electricity in Egypt.

(3) It provides muscles with the necessary energy during lack of oxygen.

(4) It protects vegetables and fruits from agricultural pests by feeding on aphid insects.

3

(A) (1) Recycling. (2) Acid rain.

(B) (1) When the temperature of the clouds is below the freezing point of water.

(2) The number of preys will increase, causing disruption of ecological balance.

(3) This means that the total length of the path taken by Heba from home to school equals 200 m

(4) 1- Centromere. 2- Chromatid.

4

(A) (1) Metamorphic.

(2) Speed and mass.

- (B) (1) No chemical change / chemical change occurs.
 (2) Both are harmful mutations.
 (3) Sedimentary rock / Plutonic Igneous rock.

13 Behira Governorate
Edko Administration Science Inspectorate

1

- (A) (1) Driving car. (2) NaOH
 (B) (1) Because it is formed through rapid cooling of lava on the surface of the Earth's crust.
 (2) Because horse is heterotrophic which depends on producers and can't make its own food through photosynthesis.
 (3) Due to :
 * Decreasing their percentage in the Earth's crust.
 * Difficulty of extracting them from their ores.
 * The lower cost of recycling than extracting them from their ores.
 (4) Due to the increase in its speed during its fall from height, as the kinetic energy is directly proportional with the square of its speed.

2

- (A) (1) X (2) X
 (B) (1) Magma when it reaches the Earth's surface.
 (2) The central point at which the two chromatids of the chromosome are connected.
 (3) A nutritional relationship between two individuals, both of them benefit from each other without causing harm to either of them.

- (4) An indicator can differentiate between the different acids or the different alkalis according to their strength.

3

- (A) (1) Consumers. (2) Sulphurous.
 (B) (1) bad (poor). (2) 1000
 (3) evaporation / condensation.
 (4) decreases.

4

- (A) (1) Acidic. (2) 400 km
 (B) (1) It leads to a disruption of this ecological balance as the number of primary consumers will decrease.
 (2) It will transform into quartzite
 (3) It causes muscle cramps.
 (4) Precipitation occurs in the form of hail.

14

Fayoum Governorate
Science Supervision for Governmental Language School

1

- (A) (1) Graphite. (2) Hydrogen.
 (B) (1) It is used in manufacture of the dry cells.
 (2) It provides muscles with the necessary energy during lack of oxygen.
 (3) It is used in demolishing old buildings by converting the potential energy stored in the heavy ball into kinetic energy upon its release.
 (4) It represents the flow of energy and its amounts between different trophic levels in any food chain.

2

- (A) (1) (d) (2) (b)

(B) (1)

Phosphorus	Iron
Doesn't have metallic luster	Has metallic luster

(2)

Magnesium chloride	Ammonium nitrate
Magnesium Mg^{2+}	Ammonium NH_4^+

(3)

Infiltration	Surface runoff
The rain water infiltrates into ground and is stored as groundwater.	The rain water flows across Earth's surface into river, seas and lakes due to Earth's gravity.

(4)

Kinetic energy	Potential energy
The energy acquired by an object as a result of its motion.	The energy stored in an object as a result of the work done on it.

③

(A) (1) H_2S

(2) KOH

(B) (1) Because the mass of car is less than the mass of truck as the mass increases, its kinetic energy increases, so the work done by truck is greater.

(2) Because the heat of the Sun causes water to move from the Earth to the atmospheric air through the process of evaporation, while the gravity of the Earth causes the water to return back to the Earth again through the process of precipitation.

(3) Because plant can make its own food through the photosynthesis process.

(4) Because they feed on the remains of dead organisms.

④

(A) (1) Albino mutation (albinism).

(2) Granite.

(B) (1) It leads to its breaking down and fragmentation, which cause mechanical weathering of the rocks.

(2) The rock minerals expand, causing mechanical weathering of this rock.

(3) This affects the remaining individuals of the food chain or the food web, leading to a disruption of this ecological balance.

(4) The number of primary consumers increases and the number of tertiary consumers decreases.

15

Beni-Suef Governorate
Educational Administration

①

(A) (1) (b)

(2) (b)

(B) (1) Cytoplasm.

(2) Speed.

(3) Lava.

(4) Salt.

②

(A) (1) Sedimentary / metamorphic.

(2) distance / m or km

(B) (1) $PE = w \times h$

$$= m \times g \times h$$

$$= 2 \times 10 \times 2$$

$$= 40 \text{ J}$$

(2) 1- Because ladybugs feed on aphid insects that harm vegetables and fruits, so it protects them from agricultural pests.

2- Because sodium hydroxide solution is an alkaline, its pH is more than 7, while sodium chloride solution is neutral, so its pH equals 7

3- Because the high percentage of the salts in water leads to increasing its density.

3

(A) (1) 2 (Copper and tin).

(2) 3 (Sodium, nitrogen and oxygen).

(B) (1) 1- ① The plant is considered a source of water vapour / through transpiration process.

② Human and animals are considered sources of water vapour through the evaporation of sweat.

2- ① The mass of the object.

② The speed of the object.

(2) 1- Energy. 2- Producers.

4

(A) (1) X (2) ✓

(B) (1) 1- Limestone.

2- The colour of eyes.

(2) 1- • Plutonic igneous rock:

Magma cools very slowly in the cracks and the layers of the Earth's crust so, the crystals are large.

• Surface igneous rock:

Lava cools quickly on the surface of the Earth's crust so, the crystals are small.

2- • Spontaneous mutations:

Mutations that occur naturally without human intervention.

• Induced mutations:

Mutations that occur through human intervention.

16

El-Menia Governorate Science guidance

1

(A) (1) tin / copper.

(2) salts / water.

(B) (1) It is used as temporary treatment to neutralize gastric hyperacidity.

(2) It is used to differentiate between acidic, alkaline and neutral substances.

(3) It is used in demolishing old buildings by converting the potential energy stored in the heavy ball into kinetic energy upon its release.

(4) They decompose the organic substances in dead bodies into simpler substances that mix with soil.

2

(A) (1) 160

(2) Weathering.

(B) (1) Because graphite is the only nonmetal which is a good electrical conductor.

(2) Because the pH value of ammonium chloride is less than 7

(3) Because the mass of the truck is greater than the mass of a car and when the mass increases, the kinetic energy increases.

(4) Because the bean plants obtain the nitrogenous compounds from the root nodular bacteria which absorb atmospheric nitrogen, required to build proteins and enzymes for the plant, while the root nodular bacteria benefit by obtaining their food from the plant through photosynthesis process, and also a suitable environment for the bacteria.

3

(A) (1) (c) (2) (b)

(B) (1) The potential energy of the object is doubled because it is directly proportional with weight of object at constant height.

(2) Competition among them increases, which affects their numbers.

(3) A chemical reaction occurs, forming protein which expresses a specific hereditary trait.

(4) The amount of water in the cup decreases gradually as it converts into water vapour, due to the energy gained from the heat of the Sun.

4

(A) (1) X (2) ✓

(B) (1)

Spontaneous mutations	Induced mutations
Mutations that occur naturally without human intervention	Mutations that occur through human intervention

(2)

Herbivores	Carnivores
- Rabbit. - Horse.	- Lion. - Snake.

(3)

Evaporation	Condensation
The conversion of water from liquid state to the gaseous state by gaining heat	The conversion of water vapour (gaseous state of water) to the liquid state by losing heat

(4)

Limestone	Granite
Sedimentary rock	plutonic igneous rock

17

Assiut Governorate
Educational Administration

1

(A) (1) (d) (2) (a)

(B) (1) 1- It is used in the manufacture of jewellery, statues and medals.

2- It provides approximate measuring of the pH values for the solutions.

(2) 1- Graphite (Carbon).

2- The change in the skin colour in cold countries to be able to adapt.

2

(A) (1) ✓ (2) X

(B) (1) 1- Weathering / erosion.

2- ground.

(2)

1- Mutualism	Predation
It occurs between root nodular bacteria and bean plants	It occurs between an insect and a Dionaea plant

2- Acidic oxides	Basic oxides
Their dissolution in water forms acids	Their dissolution in water forms alkalis

3

(A) (1) Bromine. (2) Marble.

(B) (1) 1- Because the trait of eye colour is transmitted from parent to offspring without learning and inherited from one generation to the next.

2- Because they contain OH⁻ anions which are responsible for all alkaline properties.

(2) 1- Total distance (d) = 10 + 8
= 18 m

2- Total time (t) = 4 + 2 = 6 s

Speed (v) = $\frac{d}{t} = \frac{18}{6} = 3 \text{ m/s}$

4

(A) (1) Ecosystem. (2) Potential energy.

(B) (1) 1- decreasing. 2- Kinetic energy.

(2) Mass = $8 \times 2 = 16 \text{ kg}$

KE = $\frac{1}{2} \times m \times v^2$
 $= \frac{1}{2} \times 16 \times (4 \times 4)$
 $= 128 \text{ J}$

18

Sohag Governorate
Educational Administration

1

(A) (1) ion / electron.

(2) Joule (J) / weight or force.

(B) (1) 1- HNO_2 2- KOH

(2) 1- Magnesium hydroxide.

2- Phosphoric acid.

2

(A) (1) ✓ (2) ✓

(B) (1) The number of the producers decreases and the number of secondary consumers increases.

(2) Muscle cramps occur.

(3) The colour of the blue litmus paper turns into red while red litmus paper doesn't change.

(4) The piece of graphite crumbles easily because graphite is a brittle nonmetal.

3

(A) (1) OH^- (2) heat and pressure.

(B) (1) $\text{PE} = w \times h$

$w = \frac{\text{PE}}{h} = \frac{240}{12} = 20 \text{ N}$

(2) 1- The energy stored in an object as a result of the work done on it.

2- The path of energy flow in form of food as it moves from one living organism to another.

4

(A) (1) Predation.

(2) Universal indicators.

(B) (1) 1- Because it exists in the form of two strands twisted around each other, forming a double helix.

2- Because the mass of car is less than the mass of truck and as the mass increases, its kinetic energy increases so, the work done by truck is greater.

(2)

	Basic oxides	Acidic oxides
Definition	Metal oxides, some of which dissolve in water forming alkalis	Nonmetal oxides that dissolve in water forming acids
Examples	• Magnesium oxide MgO • Calcium oxide CaO • Sodium oxide Na_2O • Potassium oxide K_2O	• Sulphur dioxide SO_2 • Sulphur trioxide SO_3 • Nitrogen dioxide NO_2 • Carbon dioxide CO_2

19

Qena Governorate
Educational Administration

1

(A) (1) (a) (2) (b)

(B) (1) Because the number of valence electrons in calcium atom (2) is

greater than that in sodium atom (1) and as the number of valence electrons in metal atom increases, the strength of the metallic bond increases so it is harder than sodium atom.

- (2) Because they contain H^+ cations which are responsible for all acidic properties.
- (3) Because the displacement equals zero.
- (4) Because the bean plants obtain the nitrogenous compounds from the root nodular bacteria which absorb atmospheric nitrogen, required to build proteins and enzymes for the plant, while the root nodular bacteria benefit by obtaining their food from the plant through photosynthesis process, and also a suitable environment for the bacteria.

②

- (A) (1) X (2) ✓
- (B) (1) Phosphate group $(PO_4)^{3-}$
 (2) Sulphuric acid H_2SO_4
 (3) Spinal deformity (Curved spine).
 (4) At maximum height.

③

- (A) (1) Salts. (2) Basic oxides.
- (B) (1) The kinetic energy of object increases four times.
 (2) The number of primary consumers increases and the number of tertiary consumers decreases.

- (3) He feels crampy with nausea and other painful symptoms
- (4) It transforms into marble rock

④

(A)

	The odd word	The scientific term of others
(1)	Mass	• Speed = $\frac{\text{Distance}}{\text{Time}}$
(2)	Marble	• Sedimentary rock

- (B) (1) • **Weathering:** The breaking down and fragmenting the rocks.
 • **Erosion:** The transportation and sedimentation of the rock fragments resulting from weathering.
- (2) • **Herbivores:** Animals feed on plants only.
 • **Carnivores:** Animals feed on meat only.
- (3) • **Evaporation :** It occurs at any temperature.
 • **Boiling:** It occurs at certain temperature ($100^\circ C$).
- (4) • **Spontaneous mutation:** Mutation occurs naturally without human intervention.
 • **Induced mutation :** Mutation occurs through human intervention.

20

Matrouh Governorate
Matrouh Educational Administration

①

- (A) (1) ✓ (2) X

- (B) (1) Because graphite is the only nonmetal which is a good electrical conductor.
- (2) Because it gives the same colour with both of them as both of them are acids.
- (3) Because the applied force causes the trolley to move in the same direction of the force.
- (4) Because the Egyptian plover bird benefits by feeding on the leftover food that get trapped between the crocodile's teeth, while the crocodile neither benefits nor is harmed.

2

- (A) (1) (b) (2) (d)

(B) (1) Sodium hydroxide.

(2) AgCl / Insoluble (sparingly soluble) salt.

$$(3) KE = \frac{1}{2} \times m \times v^2$$

$$m = \frac{2KE}{v^2} = \frac{2 \times 250}{(10 \times 10)} = 5 \text{ kg}$$

- (4) 1- Gene.
2- Nucleotide.

3

- (A) (1) Acid.
(2) Universal indicator.

(B) (1)

Dependent variable	Controlled variables
The variable to be tested and changes with changing of independent variable	The variables are controlled to remain constant throughout experiment

(2)

Decomposers	Scavengers
• Bacteria. • Fungi.	• Hyenas. • Eagles. • Cockroaches.

(3)

Spontaneous mutations	Induced mutations
• Albino mutation (albinism).	• Production of featherless chickens.

(4)

Mechanical weathering	Chemical weathering
1- Freezing of water in cracks of rocks. 2- Water flow. 3- wind blowing. 4- Grow of plant roots in rocks cracks.	1- Acid rains. 2- Chemical substances such as acids and mineral materials.

4

(A) (1) (3)

(2) 1- Melting. 2- Freezing.

(B) (1) The number of secondary consumers will increase while the number of producers will decrease.

(2) A chemical reaction occurs, leading to the formation of a protein that expresses a specific hereditary trait.

(3) Its temperature decreases causing condensation, where tiny water droplets accumulate to form clouds.

- (4) They lead to the occurrence of certain geological processes which affect the rock formation, such as: weathering, erosion, melting and crystallization.

**21 South Sinai Governorate
Dahab Educational Administration**

①

- (A) (1) Sulphurous acid / H_2SO_3
(2) 14 / Zero.

(B)

	The odd word	The scientific term for the rest
(1)	Mechanical wave	• The geological processes in rock formation.
(2)	Rat	• Carnivores.
(3)	Hens laying on eggs	• Acquired traits.
(4)	Calcium	• Atomic groups.

②

- (A) (1) ✓ (2) ✗
(B) (1) Due to the increase in the volume of water upon freezing.
(2) Due to the difference of genes present on a single chromosome, which leads to the difference of the hereditary trait that each gene is responsible for expressing.
(3) Because alloys are harder than pure metals, which tend to be soft and often unfit for the industrial uses.
(4) Because it gives the same colour with both of them (red).

③

- (A) (1) (d) (2) (b)

- (B) (1) 1- Copper and tin.

2- Magnesium, oxygen and hydrogen.

$$(2) 1- KE = \frac{1}{2} \times m \times v^2 \\ = \frac{1}{2} \times 8 \times (5 \times 5) = 100 \text{ J}$$

2- PE of the object on the surface of Earth = Zero

④

- (A) (1) Mechanical weathering.
(2) Mechanical energy.

- (B) (1) 1- HNO_3
2- NaOH

(2) 1- The potential energy is doubled because the potential energy is directly proportional with weight of object at constant height.

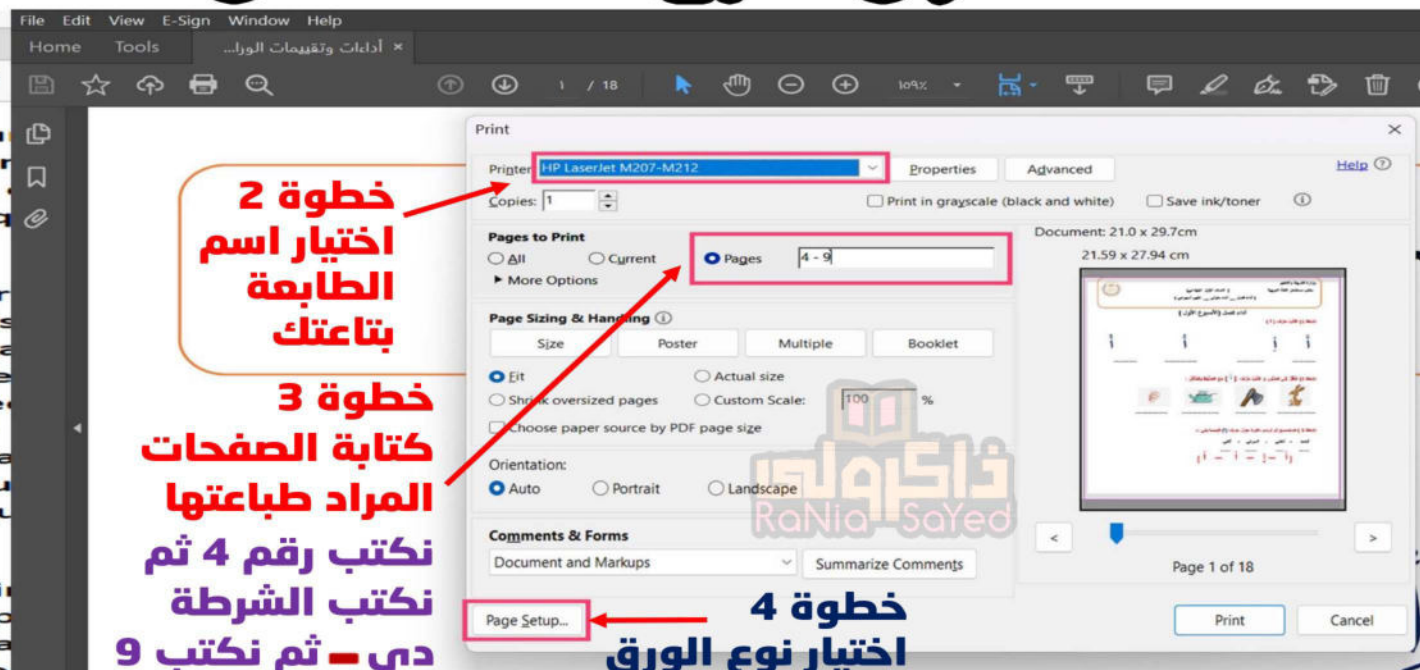
2- Competition among them increases, which affects their number.

3- It transforms into quartzite.

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



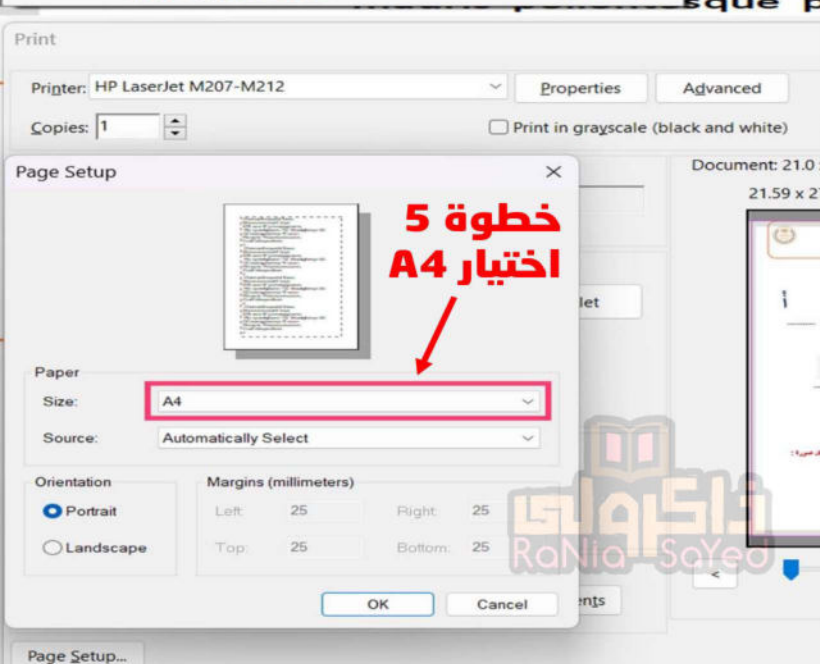
خطوة 1



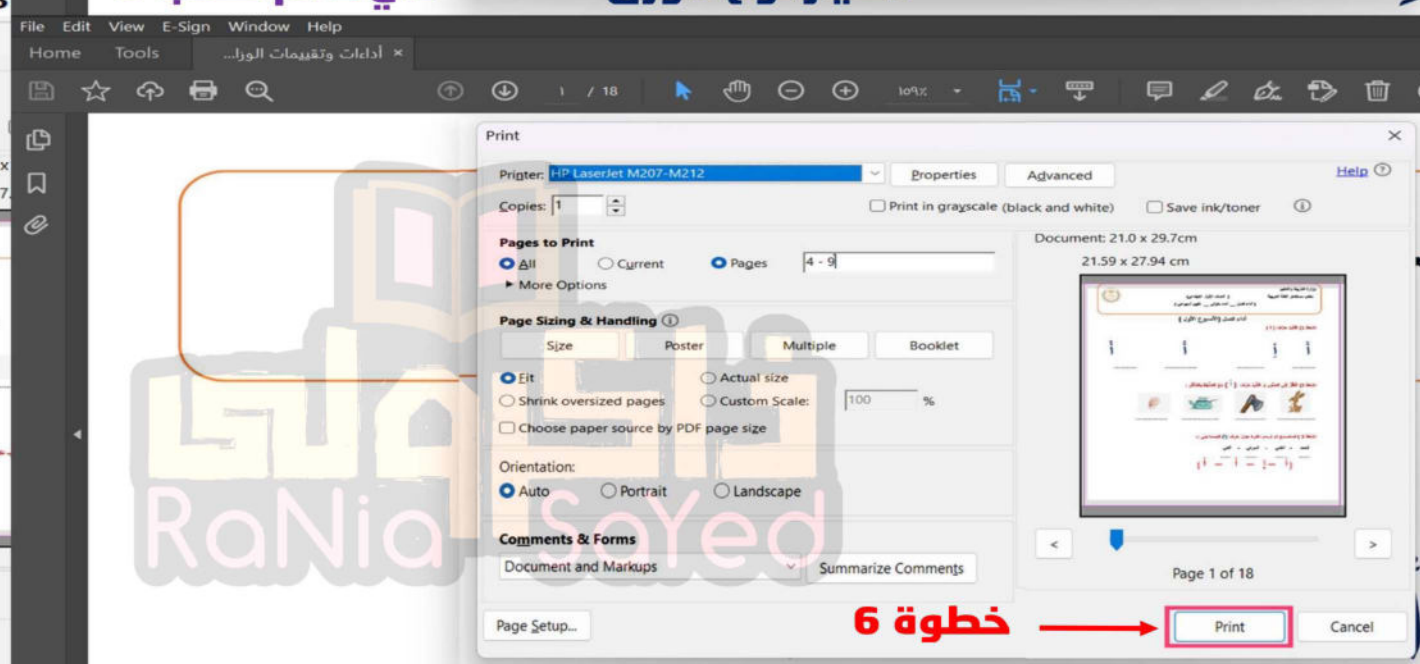
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6

حمل الآن

مجانا وحصريا

امتحانات رقم (2)

الترم الثاني



1- A) Choose the correct answer:

1 pH of a solution of NaCl is

- a) 0 b) 4 c) 7 d) 10

2 Herbivores are organisms.

- a) producers b) consumers c) scavengers d) decomposers

B) What happens when ...?

1 Increasing the number of primary consumers in a food chain.

.....

2 An electric current is passed through each of hydrochloric acid and acetic acid.
(Regarding the brightness of a bulb connected to this circuit).

.....

3 The speed of an object is doubled and its mass decreases to half.
(Regarding its kinetic energy).

.....

4 Placing a cup of water in a sunny place for several hours.

.....

2- A) Put (✓) or (X):

1 The chemical energy present in car fuel is the kinetic energy. ()

2 The number of chromosomes in corn plant cells equals 32 chromosomes. ()

B) Answer the following questions:

First: Write the name of each of the following compounds:

1 KBr (.....)

2 H_3PO_4 (.....)

Second: Calculate:

1 The weight of the body with a potential energy of 240 joules at a height of 12 meters.

.....

- 2 The amount of energy that transfers to the third trophic level if the energy at the first level equals 2000 energy units.

•
•

3- A) Write the scientific term:

- 1 A substance whose dissolution in water increases the percentage of hydroxide anions in the solution. (.....)
- 2 The sum of the potential energy and kinetic energy of any moving object. (.....)

B) Give a reason for:

- 1 The nutritional relationship between root nodular bacteria and bean plants is a mutualistic relationship.
•
•
- 2 Graphite is used in dry cells despite being a non-metal.
•
- 3 A person pushing against a wall doesn't perform work.
•
- 4 The crystals of basalt are small in size while that of granite are large in size.
•

3- A) Complete the following sentences:

- 1 gas removes the color of wet litmus strip.
- 2 When rocks deep within the Earth are exposed to high pressure and heat without melting, the rocks are formed.

B) Answer the following questions:

1 What is the meaning of the distance traveled by a car equals 30 m?

•

2 Give an example of spontaneous harmful mutation.

•

3 What is the importance of milk of magnesia?

•

4 Compare between mechanical weathering and chemical weathering.
(In terms of definition).

•

•

•

1- A) Write the scientific term:

- 1 A set of points that the object passes through its motion. (.....)
- 2 A scale that ranges between the values 0 to 14 and is used to determine the acidity and basicity of solutions. (.....)

B) Answer the following questions:

First: Give a reason for:

- 1 The High Dam has great importance in generating electrical energy in Egypt.
.....
- 2 The ladybugs are used in biological control.
.....

Second: What is the importance of ...?

- 1 Wind in water cycle
.....
- 2 Universal indicator
.....

2- A) Choose the correct answer:

- 1 The liquid element that has metallic luster is
a) iron b) mercury c) bromine d) lithium
- 2 The rock cycle is a model that illustrates
a) the unchanging of rocks b) how magma is formed
c) how sediments are formed d) transformations of rocks

B) Answer the following questions

First: Compare between:

- ① Potential energy and kinetic energy (In terms of definition and affecting factors)

-
-
-

- ② Sandstone and Gabbro rock. (In terms of type of rock).

-
-

Second: Write the chemical formula for the following compounds:

- ① Hydrosulphuric acid. (.....)

- ② Lithium hydroxide. (.....)

3- A) Complete the following sentences:

- ① When both a train and a car move in the same speed, the kinetic energy of the train is the kinetic energy of the car.

- ② A chromosome is chemically composed of a nucleic acid called twisted around a protein known as

B) First: Mention the nutritional relationship between:

- ① The remora fish that sticks to the shark's body and gets its food remains without affecting the shark. (.....)

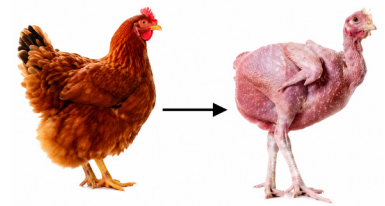
- ② The falcon that hunts mice. (.....)

Second: Answer the following questions:

- ① Calculate the kinetic energy of an object with mass of 800 g, when it covers 20 m distance in 4 s.

•
•

- ② The opposite figure represents a type of mutation.
What is the type of this mutation? And what is the importance of it?



•
•

4- A) Put (✓) or (X):

- ① The mass is estimated in kg, while the weight is estimated in N. ()
② Acidity of the soil decreases by adding basic substances such as calcium hydroxide. ()

B) Answer the following questions:

First: What happens when ...?

- ① Lactic acid accumulates in the muscles of the human body.
•
② Sandstone is exposed to extreme pressure and heat.
•
③ Sulphur burns in the presence of oxygen, then the product dissolves in water.
•

Second: Form a food chain from the following organisms:

(Rabbit – Bacteria – Fox – Grasses)

•

1- A) Complete the following sentences:

- 1 The reaction between acids and alkalis produces and
- 2 The chemical formula for the nitrate group is

B) Answer the following questions:

- 1 Calculate the force if 425 J work is done to move a stationary object for a distance of 5 m in the same direction of the force.
.....
- 2 Compare between ammonia gas and carbon dioxide gas. (In terms of type of gas – effect on litmus strip).
.....
.....
- 3 Give an example of a fossil fuel of organic origin from marine microorganisms.
.....
- 4 Mention one difference between scavengers and omnivores.
.....

2- A) Correct the underlined words:

- 1 The nutritional relationship between the plover bird and the crocodile is mutualism. (.....)
- 2 ZnSO₄ salt has blue color. (.....)

B) What happens when ...?

- 1 Nitrogen and Sulphur oxides dissolve in the water of the rains.
.....
- 2 The temperature of clouds drops below the freezing point of water.
.....
- 3 Variation in the arrangement of the nucleotides which compose a certain gene.
.....

- 4 The speed of a moving object is doubled while its mass remains constant.
(Regarding its kinetic energy).

•

3- A) Put (✓) or (X):

- 1 At the maximum height of an object, its mechanical energy is equal to kinetic energy. ()
- 2 Yellowstone National Park is a good example of chemical weathering. ()

B) Answer the following questions:

- 1 Classify the following into inherited traits, acquired traits, and instinctive behaviors:
- a) A squirrel breaking hazelnut shell. (.....)
- b) The presence of a hard skeleton covering the turtle's body. (.....)

- 2 What is the importance of limestone rock?

•

•

- 3 What is meant by energy?

•

- 4 Write the molecular formula of magnesium hydroxide.

•

4- A) Write the scientific term:

- 1 A natural process involving the movement of water between the atmospheric air and the earth in a closed multi-path cycle. (.....)
- 2 The fundamental unit in the classification of the living organisms. (.....)

B) Answer the following questions:

First: Give a reason for:

- 1 The sedimentary rocks are porous rocks.

•

- 2 It is rare to find isolated food chains in ecosystems.

•

3 Alloys are preferred to be used in industry instead of pure metals.

•

Second: What is meant by a train covers 100 km in 2 hours?

•



1- A) Correct the underlined words:

- 1 The strength of basic solution increases as the pH value approaches 4.
(.....)
- 2 The central point at which the two chromatids of the chromosome are connected is called the nucleotide.
(.....)

B) Give a reason for:

- 1 DNA is known as a double helix.
•
- 2 Occurrence of spherical weathering for granite rock.
•
- 3 It is not possible to distinguish between hydrochloric acid and acetic acid using litmus paper.
•
- 4 Mechanical energy of an object remains constant despite the increase in its potential energy when moving vertically upwards.
•

2- A) Write the scientific term:

- 1 A heavy tool used in demolishing old building as a result of the conversion of potential energy into kinetic energy. (.....)
- 2 The organism that neither benefits nor is harmed in the commensalism relationship. (.....)

B) Answer the following questions:

First: What happens when ...?

- 1 Decreasing the temperature of magma slowly in the cracks of the Earth's crust.
•
- 2 A red litmus strip is placed in a beaker containing sodium hydroxide solution.
•

3 The formation of a specific enzyme by a gene.

.....

Second: Give an example of the salt that is formed from the combination of a positive atomic group with atomic group with 3 negative charges.

.....

3- A) Choose the correct answer:

1 An object its mass is 10 kg moves at a speed of 6 m/s, if its mass decreases to half, while its speed remains constant, its kinetic energy becomes

- a) 270 J b) 180 J c) 90 J d) 45 J

2 Which of the following is the correct arrangement of the hardness of sodium $_{11}\text{Na}$, magnesium $_{12}\text{Mg}$ and aluminum $_{13}\text{Al}$

- a) $\text{Na} > \text{Mg} > \text{Al}$ b) $\text{Al} > \text{Mg} > \text{Na}$
c) $\text{Mg} > \text{Na} > \text{Al}$ d) $\text{Al} > \text{Na} > \text{Mg}$

B) Answer the following questions:

1 An object stores energy that is equal to 100 J at a height of 2 m above the ground. Calculate the mass of the object. (The Earth's gravitational field intensity = 10 N/kg)

.....

.....

2 Compare between evaporation and condensation (In terms of the change in water states).

.....

.....

3 Cross out the odd word and then mention the relation between the rest: Sodium chloride – Calcium sulphate – Nickel chloride – Copper sulphate.

.....

4 **Explain:** The producers are autotrophic organisms, while the consumers are heterotrophic organisms.

.....

4- A) Cross out the odd word:

- ① Sandstone – Marble – Limestone – Claystone (.....)
- ② Gold – Silver – Iron – Chlorine (.....)

B) Answer the following questions:

- ① What is meant by ecosystem?

•

- ② Look at the opposite figure, then answer:

A body moves from point (A) to point (F) passing through points (B), (C), and (D). Calculate:

a) The total distance.

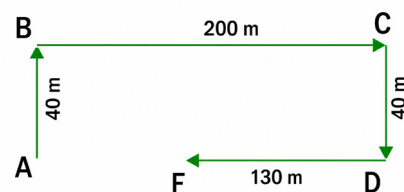
•

b) The displacement.

•

- ③ What is the result of dissolving of H_2SO_4 in water?

•



1- A) Put (✓) or (X):

- 1 The controlling variable is the variable to be tested in the experiment. ()
- 2 Molten salt is a good electrical conductor, while distilled water is bad electrical conductor. ()

B) What is meant by ...?

- 1 Genes
 -
- 2 Indicators
 -
- 3 Work
 -
- 4 Lithification
 -

2- A) Complete the following sentences:

- 1 Albinism is a mutation, while production of wheat plants resistant to wheat rust disease is an mutation.
- 2 The metallic bond exists between and

B) Answer the following questions:

- 1 What is the importance of decomposers in the ecosystem?
 -
- 2 Give one example of an acid secreted by the stomach.
 -
- 3 When can the displacement of a moving object equal zero?
 -

- 4 Compare between Igneous rocks and sedimentary rocks. (In terms of way of formation and example)

-
-
-

3- A) Cross out the odd word:

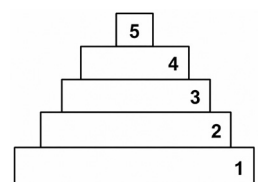
- 1 Baking soda – Grapes – Detergents – Toothpaste (.....)
- 2 Condensation – Weathering – Crystallization – Erosion (.....)

B) Answer the following questions:

First: Give a reason for:

- 1 The kinetic energy of a truck is greater than the kinetic energy of a car when their speeds are equal.
-
- 2 It is not possible to drown in the Dead Sea.
-
- 3 Recycling of some metals.
-

Second: The opposite figure represents the energy pyramid; replace the shown numbers by the following organisms:



(Snake – Locust – Hawk – Wheat grains – Frog)

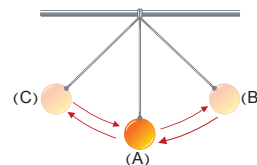
-

4- A) Correct the underlined words:

- 1 The car that travels 120 m distance in 2 minutes time has a speed that equals 60 m/s
(.....)
- 2 A portion of rainwater infiltrates into the cracks of the Earth's surface due to wind
and is stored as groundwater. (.....)

B) First: Answer the following questions:

- 1 Calculate the speed of a pendulum ball at point (A) with a mass of 4 kg and its potential energy at point (B) equals 32 J.



-
-
-

- 2 Write the name of the following compounds.

- a) NH_4OH
- b) NO_2

Second: What happens when ...?

There is a decrease in food resources for individuals of the same biotic population.

-

1- A) Choose the correct answer:

- 1 pH of a solution of NaCl is
a) 0 b) 4 c) 7 d) 10
- 2 Herbivores are organisms.
a) producers b) consumers c) scavengers d) decomposers

B) What happens when ...?

- 1 Increasing the number of primary consumers in a food chain.
• This leads to a decrease in the number of the producers and an increase in the number of the secondary consumers; which causes the disruption of the ecosystem.
- 2 An electric current is passed through each of hydrochloric acid and acetic acid.
(Regarding the brightness of a bulb connected to this circuit).
• The bulb becomes brighter in hydrochloric acid solution while it becomes dimmer in acetic acid solution.
- 3 The speed of an object is doubled and its mass decreases to half.
(Regarding its kinetic energy).
• The kinetic energy of an object increases to double.
- 4 Placing a cup of water in a sunny place for several hours.
• The amount of water in the cup decreases gradually as it converts into water vapor.

2- A) Put (✓) or (X):

- 1 The chemical energy present in car fuel is the kinetic energy. (X)
- 2 The number of chromosomes in corn plant cells equals 32 chromosomes. (X)

B) Answer the following questions:

First: Write the name of each of the following compounds:

- 1 KBr (Potassium bromide)
- 2 H_3PO_4 (Phosphoric acid)

Second: Calculate:

- 1 The weight of the body with a potential energy of 240 joules at a height of 12 meters.
• $w = \frac{\text{P.E}}{h} = \frac{240}{12} = 20 \text{ N.}$

② The amount of energy that transfers to the third trophic level if the energy at the first level equals 2000 energy units.

• The amount of energy that transfers to the second trophic level = $2000 \times \frac{10}{100}$
= 200 energy units.

The amount of energy that transfers to the third trophic level = $200 \times \frac{10}{100}$
= 20 energy units.

3- A) Write the scientific term:

① A substance whose dissolution in water increases the percentage of hydroxide anions in the solution. (Alkali)

② The sum of the potential energy and kinetic energy of any moving object. (Mechanical energy)

B) Give a reason for:

① The nutritional relationship between root nodular bacteria and bean plants is a mutualistic relationship.

• Because the bean plants obtain the nitrogenous compounds from the root nodular bacteria, while the root nodular bacteria benefit by obtaining their food from the plant through photosynthesis process.

② Graphite is used in dry cells despite being a non-metal.

• Because graphite is a good conductor of electricity.

③ A person pushing against a wall doesn't perform work.

• Because the displacement equals zero.

④ The crystals of basalt are small in size while that of granite are large in size.

• Because the crystals of basalt are formed due to the rapid cooling of lava, while the crystals of granite are formed due to the slow cooling of magma.

3- A) Complete the following sentences:

① Cl_2 gas removes the color of wet litmus strip.

② When rocks deep within the Earth are exposed to high pressure and heat without melting, the metamorphic rocks are formed.

B) Answer the following questions:

- 1 What is the meaning of the distance traveled by a car equals 30 m?
 - This means the total length of the path taken by the car while moving from the starting point to the end point equals 30 m.
- 2 Give an example of spontaneous harmful mutation.
 - Spinal deformity.
- 3 What is the importance of milk of magnesia?
 - It's used as a temporary treatment to neutralize gastric hyperacidity.
- 4 Compare between mechanical weathering and chemical weathering.
(In terms of definition).

Point of comparison	Mechanical weathering	Chemical weathering
Definition	The process of breaking down and fragmenting the rocks without any change in their chemical structure.	The process of breaking down and fragmenting rocks with a change in their chemical structure.

1- A) Write the scientific term:

- 1 A set of points that the object passes through its motion. (Path of movement)
- 2 A scale that ranges between the values 0 to 14 and is used to determine the acidity and basicity of solutions. (Potential of hydrogen pH)

B) Answer the following questions:
First: Give a reason for:

- 1 The High Dam has great importance in generating electrical energy in Egypt.
 - Because the potential energy of the water held behind the dam is converted into kinetic energy that drives the turbines that generate electricity.
- 2 The ladybugs are used in biological control.
 - Because they feed on aphids which are considered one of the agricultural pests that harm vegetables.

Second: What is the importance of ...?

- 1 Wind in water cycle
 - It moves clouds; hence water droplets accumulate inside it, so precipitation occurs.
- 2 Universal indicator
 - These provide an approximate measuring of the pH values for the solutions.

2- A) Choose the correct answer:

- 1 The liquid element that has metallic luster is

a) iron
b) mercury
c) bromine
d) lithium
- 2 The rock cycle is a model that illustrates

a) the unchanging of rocks
b) how magma is formed

c) how sediments are formed
d) transformations of rocks

B) Answer the following questions

First: Compare between:

- 1 Potential energy and kinetic energy (In terms of definition and affecting factors)

Point of comparison	Potential energy	Kinetic energy
Definition	The energy stored in an object as a result of the work done on it.	The energy acquired by an object as a result of its motion.
Affecting factors	Weight of an object. Height of an object above the ground surface.	Mass of the object. Speed of the object.

- 2 Sandstone and Gabbro rock. (In terms of type of rock).

Point of comparison	Sandstone	Gabbro rock
Type of rock	Sedimentary rocks	Plutonic igneous rocks

Second: Write the chemical formula for the following compounds:

- 1 Hydrosulphuric acid. (H_2S)
- 2 Lithium hydroxide. (LiOH)

3- A) Complete the following sentences:

- 1 When both a train and a car move in the same speed, the kinetic energy of the train is **greater than** the kinetic energy of the car.
- 2 A chromosome is chemically composed of a nucleic acid called **DNA** twisted around a protein known as **histones**.

B) First: Mention the nutritional relationship between:

- 1 The remora fish that sticks to the shark's body and gets its food remains without affecting the shark. (Commensalism)
- 2 The falcon that hunts mice. (Predation)

Second: Answer the following questions:

- ① Calculate the kinetic energy of an object with mass of 800 g, when it covers 20 m distance in 4 s.

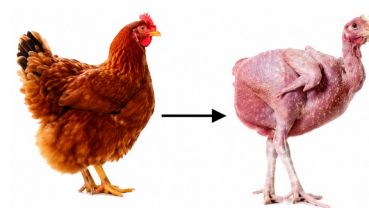
$$\bullet m = \frac{800}{1000} = 0.8 \text{ kg}$$

$$v = \frac{20}{4} = 5 \text{ m/s}$$

$$\text{K.E} = \frac{1}{2} \times 0.8 \times 5 \times 5 = 10 \text{ J}$$

- ② The opposite figure represents a type of mutation. What is the type of this mutation? And what is the importance of it?

- Induced mutation.



It reduces the electrical energy used in air conditioning on farms in hot regions.

4- A) Put (✓) or (X):

- ① The mass is estimated in kg, while the weight is estimated in N. (✓)
- ② Acidity of the soil decreases by adding basic substances such as calcium hydroxide. (✓)

B) Answer the following questions:

First: What happens when ...?

- ① Lactic acid accumulates in the muscles of the human body.
- Muscle cramps occur.
- ② Sandstone is exposed to extreme pressure and heat.
- It transforms into quartzite.
- ③ Sulphur burns in the presence of oxygen, then the product dissolves in water.
- Sulphur burning forms Sulphur trioxide which forms sulphuric acid when it dissolves in water.

Second: Form a food chain from the following organisms:

(Rabbit – Bacteria – Fox – Grasses)

• Grasses → Rabbit → Fox → Bacteria

1- A) Complete the following sentences:

- 1 The reaction between acids and alkalis produces **salts** and **water**.
- 2 The chemical formula for the nitrate group is **NO_3^-** .

B) Answer the following questions:

- 1 Calculate the force if 425 J work is done to move a stationary object for a distance of 5 m in the same direction of the force.

$$f = \frac{W}{s} = \frac{425}{5} = 85 \text{ N.}$$
- 2 Compare between ammonia gas and carbon dioxide gas. (In terms of type of gas – effect on litmus strip).

Point of comparison	Ammonia gas	Carbon dioxide gas
Type of gas	Basic gas	Acidic gas
Effect on litmus strip	It changes the color of red litmus strip to blue.	It changes the color of blue litmus strip to red.

- 3 Give an example of a fossil fuel of organic origin from marine microorganisms.
 • **Petroleum oil.**
- 4 Mention one difference between scavengers and omnivores.
 • **Omnivores organisms feed on both plants and animals while scavengers feed on the remains of dead organisms.**

2- A) Correct the underlined words:

- 1 The nutritional relationship between the plover bird and the crocodile is mutualism. (**Commensalism**)
- 2 ZnSO_4 salt has blue color. (**CuSO_4**)

B) What happens when ...?

- 1 Nitrogen and Sulphur oxides dissolve in the water of the rains.
 • **Acidic rains are formed causing the corrosion of buildings.**
- 2 The temperature of clouds drops below the freezing point of water.
 • **Snow precipitates instead of rain.**
- 3 Variation in the arrangement of the nucleotides which compose a certain gene.
 • **It causes a change in the hereditary trait that this gene is responsible for, which causes a mutation.**

- 4 The speed of a moving object is doubled while its mass remains constant.
(Regarding its kinetic energy).

- The kinetic energy increases to four times its value.

3- A) Put (✓) or (X):

- 1 At the maximum height of an object, its mechanical energy is equal to kinetic energy. (X)
- 2 Yellowstone National Park is a good example of chemical weathering. (✓)

B) Answer the following questions:

- 1 Classify the following into inherited traits, acquired traits, and instinctive behaviors:
- a) A squirrel breaking hazelnut shell. (instinctive behaviors)
 - b) The presence of a hard skeleton covering the turtle's body. (Inherited traits)
- 2 What is the importance of limestone rock?
- It is used in the construction of the Pyramids of Giza and the calcium carbonate powder resulting from the crushing of limestone rock is used in making casts for individuals suffering from bone fractures.
- 3 What is meant by energy?
- The ability to do work.
- 4 Write the molecular formula of magnesium hydroxide.
- $\text{Mg}(\text{OH})_2$.

4- A) Write the scientific term:

- 1 A natural process involving the movement of water between the atmospheric air and the earth in a closed multi-path cycle. (Water cycle)
- 2 The fundamental unit in the classification of the living organisms. (Species)

B) Answer the following questions:

First: Give a reason for:

- 1 The sedimentary rocks are porous rocks.
- Due to the presence of spaces between the particles of the sediments which compose them.
- 2 It is rare to find isolated food chains in ecosystems.
- Because each single organism can feed on multiple sources while this organism itself is a food source for several other organisms at higher trophic levels.

- ③ Alloys are preferred to be used in industry instead of pure metals.
- Because it is harder than pure metals and resistant to rusting.

Second: What is meant by a train covers 100 km in 2 hours?

- The speed of train is 50 km/h.



1- A) Correct the underlined words:

- 1 The strength of basic solution increases as the pH value approaches 4. (14)
- 2 The central point at which the two chromatids of the chromosome are connected is called the nucleotide. (centromere)

B) Give a reason for:

- 1 DNA is known as a double helix.
 - Because it exists in the form of two strands twisted around each other, forming a double helix.
- 2 Occurrence of spherical weathering for granite rock.
 - Due to chemical weathering of granite rock which is turned into spherical form due to the process of continuous erosion.
- 3 It is not possible to distinguish between hydrochloric acid and acetic acid using litmus paper.
 - Because it gives the same color (red) with both of them.
- 4 Mechanical energy of an object remains constant despite the increase in its potential energy when moving vertically upwards.
 - Because the increase in the object's potential energy during moving vertically upwards equals the decrease in kinetic energy.

2- A) Write the scientific term:

- 1 A heavy tool used in demolishing old building as a result of the conversion of potential energy into kinetic energy. (Demolition ball)
- 2 The organism that neither benefits nor is harmed in the commensalism relationship. (Host)

B) Answer the following questions:

First: What happens when ...?

- 1 Decreasing the temperature of magma slowly in the cracks of the Earth's crust.
 - Plutonic igneous rocks with large crystals are formed.
- 2 A red litmus strip is placed in a beaker containing sodium hydroxide solution.
 - The color of the red litmus strip turns into blue.

3 The formation of a specific enzyme by a gene.

- Chemical reaction occurs leading to the formation of protein that expresses a specific heredity trait.

Second: Give an example of the salt that is formed from the combination of a positive atomic group with atomic group with 3 negative charges.

- $(\text{NH}_4)_3\text{PO}_4$

3- A) Choose the correct answer:

1 An object its mass is 10 kg moves at a speed of 6 m/s, if its mass decreases to half, while its speed remains constant, its kinetic energy becomes

- a) 270 J b) 180 J c) 90 J d) 45 J

2 Which of the following is the correct arrangement of the hardness of sodium $_{11}\text{Na}$, magnesium $_{12}\text{Mg}$ and aluminum $_{13}\text{Al}$

- a) $\text{Na} > \text{Mg} > \text{Al}$ b) $\text{Al} > \text{Mg} > \text{Na}$
c) $\text{Mg} > \text{Na} > \text{Al}$ d) $\text{Al} > \text{Na} > \text{Mg}$

B) Answer the following questions:

1 An object stores energy that is equal to 100 J at a height of 2 m above the ground. Calculate the mass of the object. (The Earth's gravitational field intensity = 10 N/kg)

- $\text{P.E} = m \times g \times h$

$$100 = m \times 10 \times 2$$

$$m = 100/10 \times 2 = 5 \text{ kg}$$

2 Compare between evaporation and condensation (In terms of the change in water states).

Point of comparison	Evaporation	Condensation
The change in water states	Water changes into water vapor.	Water vapor changes into water.

3 Cross out the odd word and then mention the relation between the rest:

Sodium chloride – Calcium sulphate – Nickel chloride – Copper sulphate.

- Calcium sulphate / soluble salts.

4 **Explain:** The producers are autotrophic organisms, while the consumers are heterotrophic organisms.

- The producers can make their own food through the photosynthesis process, while consumers depend on producers to obtain their food.

4- A) Cross out the odd word:

① Sandstone – Marble – Limestone – Claystone

(Marble)

② Gold – Silver – Iron – Chlorine

(Chlorine)

B) Answer the following questions:

① What is meant by ecosystem?

- Any place that includes living organisms and non-living components and includes several levels of organization.

② Look at the opposite figure, then answer:

A body moves from point (A) to point (F) passing through points (B), (C), and (D). Calculate:

a) The total distance.

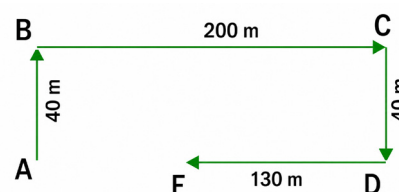
- $40 + 200 + 40 + 130 = 410 \text{ m.}$

b) The displacement.

- 70 m.

③ What is the result of dissolving of H_2SO_4 in water?

- H^+ cations and SO_4^{-2} are formed.



1- A) Put (✓) or (X):

- ① The controlling variable is the variable to be tested in the experiment. (X)
- ② Molten salt is a good electrical conductor, while distilled water is bad electrical conductor. (✓)

B) What is meant by ...?

- ① Genes
 - Segments of the nucleic acid DNA found in chromosomes that are responsible for the appearance of hereditary traits in living organisms.
- ② Indicators
 - Chemical substances whose color differs in acidic medium from that in alkaline medium.
- ③ Work
 - The amount of energy required to move an object through a certain displacement in the same direction of the force which acts on it.
- ④ Lithification
 - The compaction of sediments over many years into layers to form sedimentary rocks.

2- A) Complete the following sentences:

- ① Albinism is a **spontaneous** mutation, while production of wheat plants resistant to wheat rust disease is an **induced** mutation.
- ② The metallic bond exists between **positive ions** and **negative valence electrons**.

B) Answer the following questions:

- ① What is the importance of decomposers in the ecosystem?
 - They decompose the organic substances found in dead bodies into simpler substances that mix with the soil and become part of its components.
- ② Give one example of an acid secreted by the stomach.
 - Hydrochloric acid.
- ③ When can the displacement of a moving object equal zero?
 - When the object returns back to the starting point.

- 4 Compare between Igneous rocks and sedimentary rocks. (In terms of way of formation and example)

Point of comparison	Igneous rocks	Sedimentary rocks
Way of formation	The solidification of lava on the Earth's surface or from the solidification of magma between the cracks and layers of the Earth's crust.	Transportation and sedimentation of rock fragments followed by the compaction and lithification of sediments over the years.
example	Pumice	Claystone

3- A) Cross out the odd word:

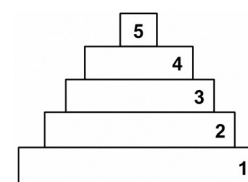
- 1 Baking soda – Grapes – Detergents – Toothpaste (Grapes)
 2 Condensation – Weathering – Crystallization – Erosion (Condensation)

B) Answer the following questions:

First: Give a reason for:

- 1 The kinetic energy of a truck is greater than the kinetic energy of a car when their speeds are equal.
 • Because the mass of the truck is greater than the mass of a car and as the mass increases the kinetic energy increases.
- 2 It is not possible to drown in the Dead Sea.
 • Because the high percentage of the salts in water leads to increasing its density.
- 3 Recycling of some metals.
 • Due to decreasing their percentage in the Earth's crust and lower cost of recycling than extracting them from their ores.

Second: The opposite figure represents the energy pyramid; replace the shown numbers by the following organisms:



(Snake – Locust – Hawk – Wheat grains – Frog)

- 1) Wheat grains 2) Locust 3) Frog 4) Snake
 5) Hawk

4- A) Correct the underlined words:

- 1 The car that travels 120 m distance in 2 minutes time has a speed that equals 60 m/s
(1 m/s)
- 2 A portion of rainwater infiltrates into the cracks of the Earth's surface due to wind
and is stored as groundwater. (Earth's gravity)

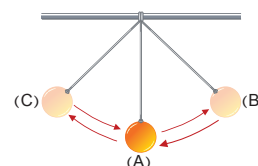
B) First: Answer the following questions:

- 1 Calculate the speed of a pendulum ball at point (A) with a mass of 4 kg and its potential energy at point (B) equals 32 J.

• K.E at point (A) = 32 J

$$v^2 = \frac{2 \times \text{K.E}}{m} = \frac{2 \times 32}{4} = 16$$

$$v = \sqrt{16} = 4 \text{ m/s}$$



- 2 Write the name of the following compounds.

a) NH_4OH ammonium hydroxide

b) NO_2 Nitrogen oxide

Second: What happens when ...?

There is a decrease in food resources for individuals of the same biotic population.

- Competition among these individuals increases, which affects their numbers.

حمل الآن

مجانا وحصريا

امتحانات رقم (3)

الترم الثاني



Final Exam – Second Term – Academic Year 2024 / 2025

Answer all the following questions:

Question One:

A. Complete the following sentences:

1. is a non-metal that is a good conductor of electricity and is used in the manufacture of
2. A chemical indicator can be prepared from the leaves of the plant.

B. Give reasons for the following:

1. Calcium hydroxide is used in treating acidic soil.
 2. The statues of the lions on Qasr El-Nil Bridge do not rust.
 3. A person pushing against a wall does no work.
 4. Bears and crows are omnivorous animals.
-

Question Two:

A. Choose the correct answer from the brackets:

1. An object has potential energy of 80 joules at a height of 2 meters. Its weight equals Newton.
(160 – 82 – 40 – 78)
 2. Which step does the plant perform in the water cycle?
(condensation – evaporation – precipitation – transpiration)
-

B. Compare between each of the following:

- | | |
|--|---|
| 1. Carbonic acid and ammonium hydroxide | (in terms of chemical formula) |
| 2. Potassium carbonate salt and calcium carbonate salt | (in terms of solubility in water) |
| 3. Potential energy and kinetic energy | (in terms of the factors affecting) |
| 4. Humans and corn plants | (in terms of the number of chromosomes in the cell) |

Question Three:

A. Write the scientific term that matches each of the following descriptions:

1. The force of attraction between positive metal ions and the surrounding cloud of valence electrons.
2. An acid secreted by the stomach that helps in digesting food.

B. What happens in the following cases?

1. The mass of a moving object decreases to half while its speed remains constant (regarding kinetic energy).
 2. A change occurs in the arrangement of nucleotides on the DNA strand.
 3. The decomposers disappear from the ecosystem.
 4. The temperature of the clouds drops below the freezing point of water.
-

Question Four:

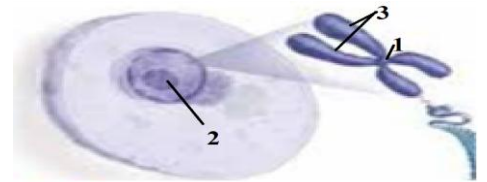
A. Correct the underlined part of each sentence:

1. The kinetic energy of a pendulum ball increases as it moves toward the highest point.
2. Thermal expansion and contraction of metal rocks is one of the causes of chemical weathering.

B. Look at the following diagrams and answer the questions:

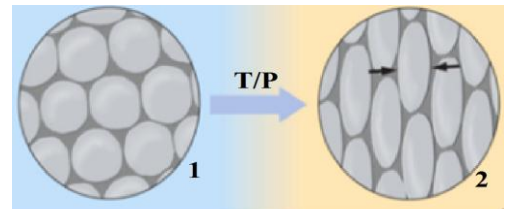
In the diagram:

1. Complete the labels on the diagram.
2. Identify what number 3 points to in **both the bacterium and the rabbit**.



In the second diagram:

3. What **type of rock** is formed in the diagram?
4. Mention one example of both **rock 1** and **rock 2**.



Questions finish

Answer all the following questions:

Question One **(6 marks)**

A) Complete the following sentences:

1. Graphite / Dry cell
 2. red cabbage
-

B) Give reasons for the following:

1. Because it is a basic substance that neutralizes soil acidity.
 2. Because it is made from a bronze alloy that does not rust.
 3. Because the force does not cause a displacement of the wall in the direction of its effect.
 4. Because it feeds on both plants and animals.
-

Question Two : **(6 marks)**

A) Choose the correct answer from the brackets:

1. Newton – 40
 2. Transpiration
-

B) Compare between each of the following:

1. Carbonic acid (H_2CO_3) and Ammonium hydroxide (NH_4OH)
2. Potassium carbonate (soluble) and Calcium carbonate (insoluble)
3. Potential energy (depends on weight and height) and Kinetic energy (depends on mass and speed)
4. Human (46) and Corn plant (20)

Question Three: **(6 marks)**

A) Write the scientific term that matches the following definitions:

1. Metallic bond
2. Hydrochloric acid

B) What happens in the following cases:

1. The kinetic energy is reduced to half
 2. The difference in genes located on the same chromosome leads to differences in genetic traits
 3. Organic matter from dead organisms does not decompose into simple substances that mix with the soil
 4. Snow falls instead of rain
-

Question Four: (6 marks)

A) Correct the underlined parts:

1. The position direction is the starting point (rest position)
Mechanical energy

B) Look at the following diagrams, then answer the questions:

In the first diagram:

1. The numbers represent:
 - 1: **Centromere**
 - 2: **Nucleus**
 - 3: **Chromatid**
 2. Comparison:
 - **Bacteria:** Has **cytoplasm only**
 - **Rabbit:** Has a **nucleus**
-

In the second diagram:

3. The rock shown is: **Metamorphic rock**
4. Rock 1 (e.g., **Limestone or Sandstone**)
Rock 2 (e.g., **Marble or Quartzite**)

مجموع الدرجات

امتحان الفصل الدراسي الثاني ٢٠٢٤ / ٢٠٢٥ م
للفصل الأول الإعدادي (العام والرياضي واللغات)

المادة : العلوم (Science)

زمن الإجابة : ساعتان

التاريخ : / / ٢٠٢٥ م

٢٤

رقم المراقبة

رقم السؤال	الدرجة أرقام	الدرجة كتابة	التوقيع	
			المقدر	المراجع
الأول				
الثاني				
الثالث				
الرابع				
المجموع				

مجموع الدرجات بالحروف :

توقيع المراجع :

رقم المراقبة

امتحان الفصل الدراسي الثاني ٢٠٢٤ / ٢٠٢٥ م
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اسم الطالب :

المدرسة :

رقم الجلوس : المحافظة :

١-

٢-

توقيع الملاحظين بصحة بيانات الطالب كما وردت برقم جلوس الطالب ، ومطابقة عدد أوراق الكراسة عند استلامها منه:

Model 1

Question 1(A) Multiple Choice:

1. Which of the following is an example of an alkaline salt?

- a- NaCl b- Na_2CO_3 c- NaNO_3 d- NH_4Cl

2. All of the following are nonmetals except:

- a- Element $_{16}\text{X}$ b- Element $_8\text{Y}$ c- Element $_{19}\text{W}$ d- Element $_7\text{Z}$

(B) Answer the following questions :

1. Calculate the weight of an object with a potential energy of 8 kJ placed at a height of 4 meters.?
2. Given the food chain: [$\text{W} \rightarrow \text{X} \rightarrow \text{Y} \rightarrow \text{Z}$], answer the following:
 - Identify the organism representing the secondary consumer.
 - What is the primary energy source for organism W?
3. What occurs when the pH value of a solution increases from 2 to 6?
4. Explain why aluminum (Al) has a higher melting point than sodium (Na).

Question 2 :- (A) Fill in the Blanks:

1. Igneous rocks form as a result of _____ and _____. When existing rocks are subjected to pressure and heat, they transform into _____ rocks.
2. When an object is projected vertically upward, its kinetic energy _____ while its mechanical energy _____.

(B) Answer the following questions :

1. Explain why energy decreases from the base to the top of an energy pyramid.
2. How can you experimentally distinguish between a solution of sulfur trioxide and a solution of magnesium oxide?
3. What happens to an object's speed if it travels twice the distance in half the time?
4. Write the molecular formula for the compound formed from Al^{3+} and CO_3^{2-} ions.

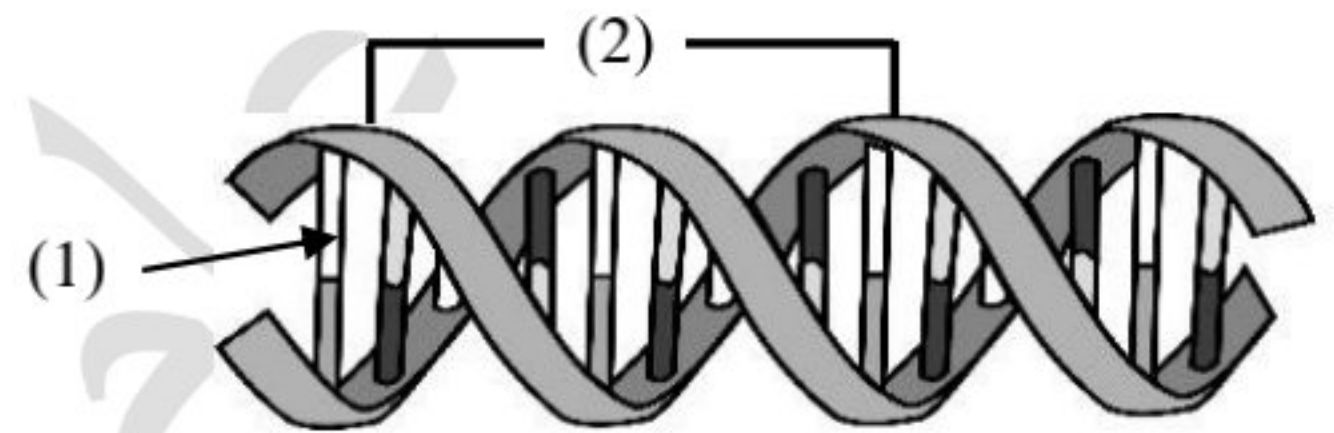
Question 3

(A) write the scientific Terms:

1. The chemical formula representing a polyatomic ion composed of two different elements.
2. The chemical name of the acid containing the chlorite anion.

(B) Answer the following questions :

1. An object with a mass of 600 g is thrown vertically upward at a speed of 20 m/s. Calculate its potential energy at the highest point.?
2. State the importance of the lactose tolerance mutation.
3. Why does the proportion of water on Earth's surface remain constant despite continuous evaporation?
4. In the provided diagram, identify what the numbers represent:



- (1) _____
- (2) _____

Question 4

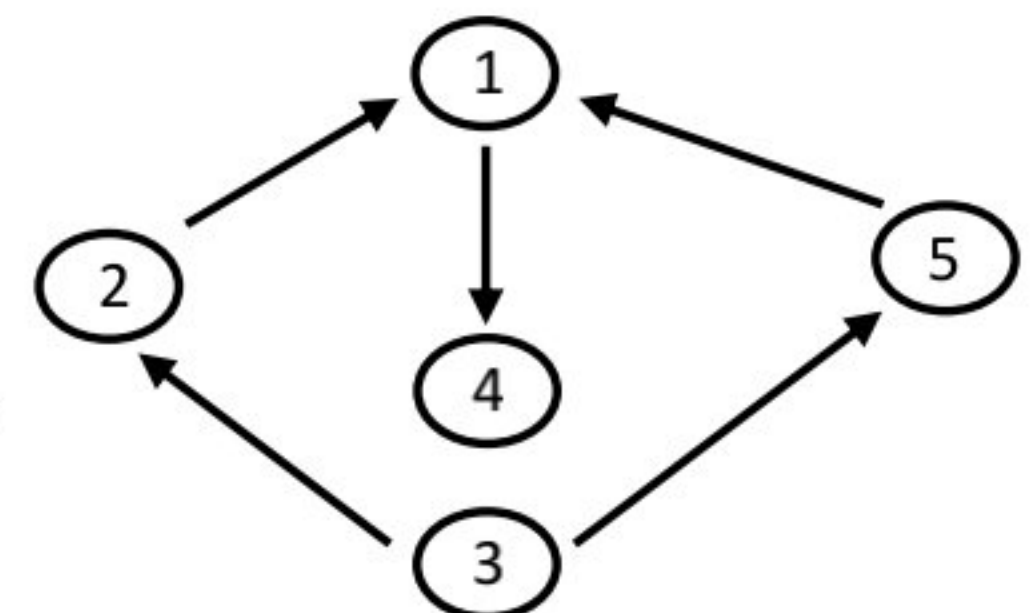
(A) Correct the Underlined Statements:

1. The ratio of displacement to distance for an object moving in a straight line is greater than one.
2. Ancient Egyptians used igneous rocks to build the pyramids.

(B) Answer the following questions :

1. In the given food web:

- Identify the organism at the highest trophic level.
- How many distinct food chains are present?



2. State the geological importance of sedimentary rocks.?
3. What happens when a glass containing very cold water is left in the air for some time?
4. Why is producing cube-shaped watermelons considered an agricultural technique not a genetic mutation?

Question One: A – Complete the following sentences:

1. The gas removes the color of litmus paper, whereas the gas has no effect on litmus paper.
2. An example of a carnivorous animal is, whereas an example of an herbivorous animal is
3. Granite is classified as an rock, whereas basalt is classified as a rock.

B – Give reasons for the following:

1. The kinetic energy of a body increases while falling, even though its mass remains constant.
.....
2. A child learning to walk is considered an acquired characteristic.
.....
3. Magnesium (Mg) is classified as a metal.
.....

Question Two:

6

A – Write the scientific term for the following:

1. An acid secreted by the stomach that aids in digestion.
.....
2. The point of attachment between two chromatids in a chromosome.
.....
3. The process of water changing from liquid to gas due to heat absorption.
.....

B – Identify the unrelated word and state what links the remaining words:

1. Graphite – Sulfur – Chlorine – Oxygen
.....
2. Work – Force – Displacement – Kinetic Energy
.....
3. Condensation – Melting – Precipitation – Evaporation
.....

6

Question Three:

A – Correct the underlined parts in the following statements:

1. The organism harmed by predation is called the host. (.....)
2. Bromine is the only liquid metal. (.....)
3. Tatum is considered the founder of genetics. (.....)

B – Choose the correct answer from the brackets:

1. The two factors that maintain the continuity of the water cycle are:
(sun and wind – wind and gravity – sun and gravity – friction and gravity)
2. Copper is used in making bronze at a proportion of:
(5% – 15% – 90% – 95%)
3. Genes control the expression of inherited traits by producing:
(hormones – enzymes – chromosomes – vitamins)

6

Question Four:

A – Calculate the speed of a body with a mass of 20 kg and kinetic energy of 250 J.

.....

B – Write the chemical formula for each of the following:

1. Sulfuric acid:
2. Sodium hydroxide:
3. Copper(II) sulfate:

C – Define potential energy:

.....

6

Model 3

Question One:

A) Complete the following with appropriate words:(2 points per item – 1 point each)

1. The only liquid metal is, while the only liquid non-metal is
2. The factors that help maintain the water cycle are and

B) Give reasons for the following:(4 points per item – 1 point each)

1. A person pushing an object forward is said to be doing work.
.....
2. Some individuals replace dairy products with other alternatives.
.....
3. Erosion is considered a double-edged sword.
.....
4. Bacteria and fungi are examples of decomposers.
.....

6

Question Two:

A) Correct the underlined parts of the following:(2 points per item – 1 point each)

1. Producing cube-shaped watermelons is considered a spontaneous mutation.
.....
2. The chemical formula of sulfuric acid is H_2SO_3 .
.....

B) Provide the correct numerical value for each of the following:

(4 points per item – 1 point each)

1. The speed of a body that covers 50 kilometers in 2 hours.
.....
2. The percentage of the main metal in the bronze alloy.
.....
3. The kinetic energy of a body with mechanical energy of 1000 J and potential energy of 300 J.
.....
4. The potential energy of a body with a weight of 50 N and a height of 10 meters above the ground.
.....

6

Question Three:

A) Express the following with appropriate scientific terms:

(2 points per item – 1 point each)

1. Thread-like structures that represent the genetic material of an organism.

.....

2. A bond formed between a positive metal ion and its valence electrons.

.....

B) What happens when:(4 points per item – 1 point each)

1. Table sugar is added to concentrated sulfuric acid.

.....

2. The speed of a body is doubled in relation to its kinetic energy.

.....

3. An acid is added to limestone rock.

.....

4. There is a shortage of food resources for the members of a biological population.

.....

6

Question Four:

A) Choose the unrelated word, then state the relation between the remaining words:

(2 points per item – 1 point each)

1. Lemon – Ketchup – Grapes – Toothpaste

.....

2. Granite – Basalt – Pumice – Marble

.....

C) State one importance for each of the following:(4 points per item – 1 point each)

1. Milk of magnesia

.....

2. Ladybird beetles

.....

3. Wrecking ball

.....

4. pH meter

.....

6

Question One: A – Complete the following:

1. A change in pH from 7 to 12 indicates the substance was
and became
2. The freezing of water in rock cracks is one cause of weathering, while
spheroidal weathering is a type of weathering.

B – Answer the following:

1. Define each of the following:

- a. Energy
- b. Rocks

2. State the importance of:

- a. Genes
- b. Bronze alloy

6

Question Two:

A –

1-Correct the underlined parts:

Nickel chloride is a yellow solid salt.

- 1- Work of 40 J is done when a force of 80 N is applied to lift an object vertically
over a distance of 2 m.?

B – Answer the following:

1. Calculate the mass of a body moving at 10 m/s if its kinetic energy is 1000 J.?
.....

2. Give reasons for the following:

- a. Boiling point is considered a distinguishing property of pure substances, unlike
evaporation.
.....

- b. Calcium hydroxide is sometimes added to certain types of soil.
.....

6

Question Three:

A – Choose the correct answer:

1-If the mass of an object is halved and its height is doubled, its potential energy will:
a. Double b. Be halved c. Remain the same d. Be reduced to a quarter

1. Bromine is similar to graphite in:

- a. Color b. Physical state c. Electrical conductivity d. Element type

B – Answer the following:

1. Write the scientific term for each of the following:

- a. A natural change in one of the inherited traits
b. A compound formed by the reaction of an acid cation with a base anion

2. What happens when:

- a. Energy transfer occurs from the first trophic level to the second

.....

- b. Sedimentary rocks are subjected to intense heat and pressure

.....

6

Question Four:

A – Identify the unrelated term or symbol, and state what links the remaining ones:

1. Water flow / Acid rain / Thermal expansion and contraction / Wind erosion

.....

2. H_2 / O_2 / N_2 / Cl_2

.....

B – Compare the following:

1. Basalt rock and limestone – in terms of rock type

2. Omnivorous animals and scavenger animals

3. Sodium and aluminum – in terms of strength of metallic bonding

4. Sulfuric acid and sulfurous acid – in terms of electrical conductivity

6

Question One:**A) Complete the following statements:**

1. The only liquid metal is, while the only liquid non-metal is
2. The acid containing the group (ClO₂) has the molecular formula, and the base containing the group (NH₃) has the molecular formula

B) Give scientific reasons for the following:

1. The electrical conductivity of acetic acid is lower than that of hydrochloric acid.
.....
2. The kinetic energy of a truck is greater than that of a car when both are moving at the same speed.
.....
3. Hyenas are considered scavenger animals.
.....
4. Not all salt solutions are neutral.
.....

Question Two:**A) Write the scientific term for each of the following:**

1. A mixture made by melting two or more metals together. (.....)
2. Two processes in the water cycle that occur at any temperature.)

B) State one importance for each of the following:

1. Genes
2. Bronze alloy
3. Wrecking ball
4. Milk of magnesia

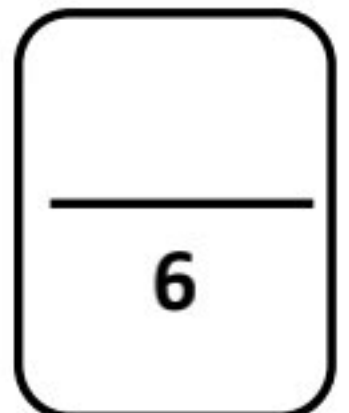
Question Three:

A) Choose the correct answer:

1. All of the following elements have fewer than 4 electrons in their outermost shell *except*:
a) Hydrogen b) Sodium c) Phosphorus d) Magnesium
2. The ammonium hydroxide molecule is composed of:
a) Four atoms of three different elements b) Four atoms of two elements
c) Seven atoms of three elements d) Three atoms of two elements

B) Answer the following:

1. What processes cause limestone to transform into marble?
.....
2. Calculate the kinetic energy of a metal ball with a mass of 2 kg moving at a speed of 3 m/s.
.....
3. What type of feeding relationship exists between:
a) A wolf and a rabbit
b) The Nile crocodile and the plover bird



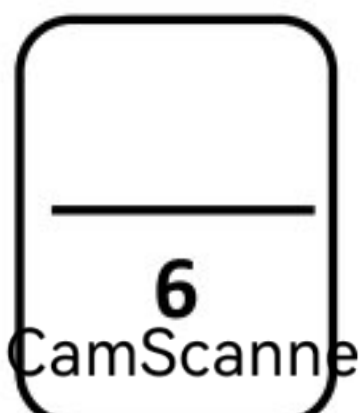
Question Four:

A) Correct the underlined part of each statement:

1. Erosion is the process of breaking and crumbling rocks.
2. If the *weight* of an object is doubled while its height remains constant, its potential energy decreases to half.

B) Answer the following:

1. Compare:
a) Spontaneous mutations and Induced mutations
2. Mention one instinctive behavior specific to squirrels.
3. Arrange the following geological events in order of occurrence:
 - Weathering and erosion
 - Formation of igneous rock
 - Formation of sedimentary rock
 - Magma eruption
 - Compaction and lithification
4. Draw an energy pyramid showing four trophic levels.
.....



حمل الآن

مجانا وحصريا

امتحانات رقم (4)

الترم الثاني



Model exam 1

Answer the following questions:

Question 1: A) Complete the following sentence:

- 1- Factors affecting potential energy are. and
- 2- The bronze alloy is composed of at 5% and at 95%
- 3- is the individual that benefits from commensalism

B) Compare between the following:

- 1- Acidic oxides and basic oxides. "In term of the result of their dissolution in water".
- 2- Granite and marble. "In term of type of rock".
- 3- Hereditary traits and acquired traits. "In term of example"

Question 2: A) Choose the correct answer:

- 1- What is the amount of work done by a student pushing the wall of his room with a force of 500 N?
(a) zero (b) 225J (c) 500J (d) 1000J
- 2- The combination of Mg^{2+} cation with CO_3^{2-} anion, forms.....
(a) an acid. (b) an alkali. (c) an oxide. (d) a salt.
- 3- Genes control the appearance of hereditary traits in the living organism by producing.....
(a) Hormones (b) vitamins (c) Enzymes (d) Chromosomes

B) Give reasons for the following:

- 1- Water drops form on the outer surface of a cup containing water and ice cubes.
- 2- Carbon is used in the manufacture of dry cells, although it is a non-metal.

3- The role of fuel within a car is similar to the role of food within a living organism.

Question 3: A) Mark (✓) or (X) for each statement:

- 1-Chemical weathering is the process of disintegrating and breaking rocks with a change in their properties. ()
- 2-The acid which contains chlorite anion ClO_2^- , is known as chloric acid. ()
- 3-A train that covers a distance of 200 km in 150 min its speed is 90 km/h ()

B) What is meant by each of the following:

- 1- Desalination.
 - 2-Indicators.
 - 3-Mechanical energy.
-

Question 4: A) Write the scientific term:

- 1-Mutations that occur naturally without human intervention
- 2-A substance whose dissolution in water leads to an increase in the percentage of OH^- anions in the solution.
- 3-The variable that is changed during the experiments

B) State the importance of each of:

- 1- Gravity in the water cycle in nature.
- 2- Energy pyramid.
- 3- PH Meter

Model exam 2

Q1: A Complete the following sentences:

- 1- Oxides are divided into oxides, andoxides.
- 2- The molecular formula of nickel chloride salt is and its colour is

B: Give reasons for each of the following:

- 1- Graphite is used in dry cells despite being a nonmetal.
- 2- Acid turn blue litmus strip to red.
- 3- The work required to move a car increases as its mass increases.
- 4- Bacteria and fungi are called decomposers.

Q2: (A) Put a mark (✓) in front of the correct statements and an (x) in front of the incorrect statements:

- 1- The forms of infiltration are rain, snow and hail ()
- 2- The measuring unit of displacement is the same as the measuring unit of distance ()

(B) What happens when:

- 1- Lack of food sources in a balanced ecosystem
- 2- Mixing molten gold with molten copper.
- 3- Reaction of acids with alkalis

-Problem:

A body moves at a speed of 20 km/h. Calculate the distance travelled after three hours?

Q3 (A) Choose the correct answer:

- 1- The liquid element which is bad conductor of heat and electricity is
(bromine – chlorine – mercury – lithium)
- 2- Copper is a component of bronze alloy, its percentage is
(5% - 15% - 65% - 95%)

(B)What is meant by:

- 1- Speed
- 2- Genetic traits
- 3- Predation
- 4- Rocks

Q4 (A) Write the scientific term:

- 1- The energy stored in a body as a result of the work done
- 2- The processes of transportation and sedimentation rock fragments which resulting from weathering away from the areas where they were originally found.

(B) Compare:

- 1- Sedimentary, Metamorphic and Igneous Rocks in terms of Examples & Method of Formation
- 2- Inherited traits, instinctive behaviors, acquired traits in terms of Definition& Examples.
- 3- Mechanical weathering and chemical weathering.
- 4- Commensalism and mutualism in terms of Definition & Examples.

Model exam 3

Q1 – A) Choose the correct answer:

1-what is the quantity that have the same measuring unit as force

- a) energy b) displacement c) speed d) weight

2-PH value of a solution is changed from 8 to 5, that means it was

- a) acidic and become alkaline b) acidic and become neutral
c)alkaline and become neutral d) alkaline and become acidic

Q1- B) compare between:

1-sponatnous mutation and induced mutation (in term of example)

2-ammonia gas and carbon dioxide gas

(in term of effect on litmus strips witted with water)

3-scavengers and omnivores (in term of type of food)

4-granite and basalt (in term of size of crystals)

Q2-A write the scientific term of each of the following sentences

1-thread- like bodies representing the genetic materials of the eukaryotic microorganisms

2-rocks formed from the solidification of magma or lava

Q2 – B) Calculate or mention the number of:

1- the percentage of fresh water in relation to total area of water bodies on earth's surface

2-the number of cations produced from dissolving sulphuric acid H_2SO_4

3-the range of the scale that used to determine the acidity or basicity

4-the ratio between the kinetic energy to the potential energy at midpoint

Q3-A: correct the underline word

- 1-the stomach secretes lactic acid which help in the digestion of food
- 2-the product of the speed of the object multiplied by the time equals the work

Q3-B: what happen when:

- 1-change in the nature of specific gene
- 2-competition between two lions for food
- 3-placing a cup of water in sunny place for several hours
- 4-the exposure of sandstone to extreme pressure and heat

Q4-A) put (✓)or (x)

- 1-only the host benefit in the commensalism ()
- 2-solid salts and their solutions are good electrical conductors ()

Q4-B) what is

- 1-The height of the object of mass 6 kg above the ground if the potential energy is 180 J (gravitational field intensity 10 N / Kg)
- 2-The mechanical energy of the object at the midpoint between the falling position and the ground
- 3-Type of nutritional relationship between the fly and Dionaea plant
- 4-Use of sea water desalination

Model exam 1

Question 1:

A) Complete the following sentence:

- 1- weight / height
- 2- tin / copper
- 3- Commensal

B) Compare between the following:

1-

Acidic oxides	basic oxides
Acid	Alkali

2-

Granite	Marble
Igneous rock	Metamorphic rock

3-

Hereditary traits	Acquired traits
Eyes color	Dolphin playing football

Question 2:

A) Choose the correct answer:

- 1- Zero.
- 2- a salt.
- 3- Enzyme.

B) Give reasons for the following:

- 1- Due to condensation of water vapor that found in air.
- 2- Because it's only non-metal good conductor of electricity.
- 3- Because the chemical energy found in food and fuel is potential energy stored in chemical bonds.

Question 3:

A) Mark (✓) or (X) for each statement:

- 1- (✓)
- 2- (X)
- 3- (X)

B) What is meant by each of the following:

- 1- A process that removes salts from seawater.
- 2- Chemical substances whose color differs in acidic medium from that in alkaline medium.

3- The sum of the potential and the kinetic energies of any moving object.

Question 4:

A) Write the scientific term:

- 1- Spontaneous mutation.
- 2- Alkali.
- 3- Independent variable.

B) State the importance of each of:

- 1- Causes precipitation (water returns into Earth).
- 2- represents the flow of energy and its amounts between the different Trophic levels in any food chain
- 3- measure the pH value of solutions directly and accurately

Model exam 2

Q1:A Complete the following sentences:

- 1-Oxides are divided into **basic** oxides, **acidic** and oxides.
- 2-The molecular formula of nickel chloride salt is **NiCl₂** and its colour is **green**.

B: Give reasons for each of the following:

- 1-Graphite is used in dry cells despite being a nonmetal.
- bec.It is the only non-metal which is a good conductor of electricity.
- 2-Acids turn blue litmus strip to red.
-bec. They contain H⁺ cations responsible for all acidic properties.
- 3-The work required to move a car increases as its mass increases.
-bec.When the mass of the car increases its kinetic energy increases and thus the work required to move it increases.
- 4-Bacteria and fungi are called decomposers.
-bec.They decompose (break down) the organic substance found in the dead bodies of other organisms into simpler substances.

Q2: (A) Put a mark (✓) in front of the correct statements and an (x) in front of the incorrect statements:

- 1- The forms of infiltration are rain, snow and hail (x)
- 2- The measuring unit of displacement is the same as the measuring unit of distance (✓)

(B) What happens when:

1-Lack of food sources in a balanced ecosystem

Competition between living organisms within the same species appears.

2-Mixing molten gold with molten copper.

It will form a hard strong alloy.

3-Reaction of acids with alkalis

Neutralization reaction occurs giving salts & water.

-Problem:

A body moves at a speed of 20 km/h. Calculate the distance travelled after three hours?

$$\begin{aligned}\text{Distance} &= \text{speed} \times \text{time} \\ &= 20 \times 3 = 60 \text{ km}\end{aligned}$$

Q3 (A) Choose the correct answer:

1- The liquid element which is bad conductor of heat and electricity is (bromine – chlorine – mercury – lithium)

2- Copper is a component of bronze alloy, its percentage is
(5% - 15%- 65% - 95%)

(B) What is meant by:

1- Speed

It is the distance covered in unit time

2- Genetic traits

Traits that are transmitted from parents to their offspring without learning.

3- Predation

It is a nutritional relationship between two individuals, one of them benefits and the other gets harmed or loses its life.

4- Rocks

It is a solid material that composed of one or several minerals.

Q4 (A) Write the scientific term:

1- Potential energy

2- Erosion

(B) Compare:

1- Sedimentary, Metamorphic and Igneous Rocks in terms of Examples & Method of Formation

	Sedimentary rocks	Metamorphic rocks	Igneous Rocks
Examples	Sandstone, claystone, limestone	Marble & Quartzite	Granite, gabbro, basalt and pumice
Method of Formation	Weathering, erosion, deposition & lithification	High pressure and temperature without melting	High pressure and temperature till melting and crystallization

2- Inherited traits, instinctive behaviors, acquired traits in terms of Definition & Examples.

	Inherited traits	Acquired traits	Instinctive behaviors
Definition	Traits passed from parents to offspring through genes.	Traits that can be learned or trained	Behaviors and skills passed from parents to offspring without learning

Examples	Eye color–hair type	Learning a language– riding a bicycle	A spider weaving its web –A hen brooding its eggs.
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3- Mechanical weathering and chemical weathering.

	Mechanical weathering	Chemical weathering
Definition	The breakdown of rocks without changing their chemical composition	The breakdown of rocks through chemical reactions that changes their composition

4- Commensalism and mutualism in terms of Definition & Examples.

	Commensalism	mutualism
Definition	A nutritional relationship between two living organisms where one organism benefits, and the other is neither benefited nor harmed.	A nutritional relationship between two living organisms where both organisms benefit
Examples	Plover bird and crocodile	Bee and flower

Model exam 3

Q1-A

1- (d) weight

2-(d) alkaline and become acidic

Q1-B

1- spontaneous: (dark skinned mother giving birth to albino child)

Induced mutation:(production of featherless chicken)

2-ammonia gas: turn red litmus paper into blue

Carbon dioxide gas: turn blue litmus into red

3-scavengers: eat dead animals

Omnivores eat both plant and animals

4-granite: has large crystals

Basalt: has small sized crystals

Q2-A

Write the scientific term

1-chromosome

2-igneous rocks

Q2-B

1-3%

2-2 cations

3-from 0 to 14

4- 1:1

Q3-A

1-hydrochloric acid

2-distance

Q3-B

1-mutation occur

2-both of them get harmed

3-water will evaporate

4-it will turn into quartz

Q4-A

1-(false)

2-(true)

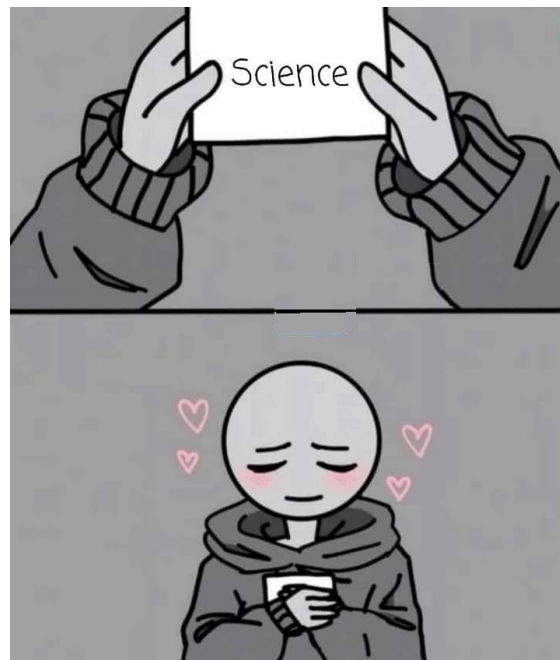
Q4-B

1-height = 3m

2-double potential energy or double kinetic energy

3-predation

4-to sperate salt from water and obtain fresh water

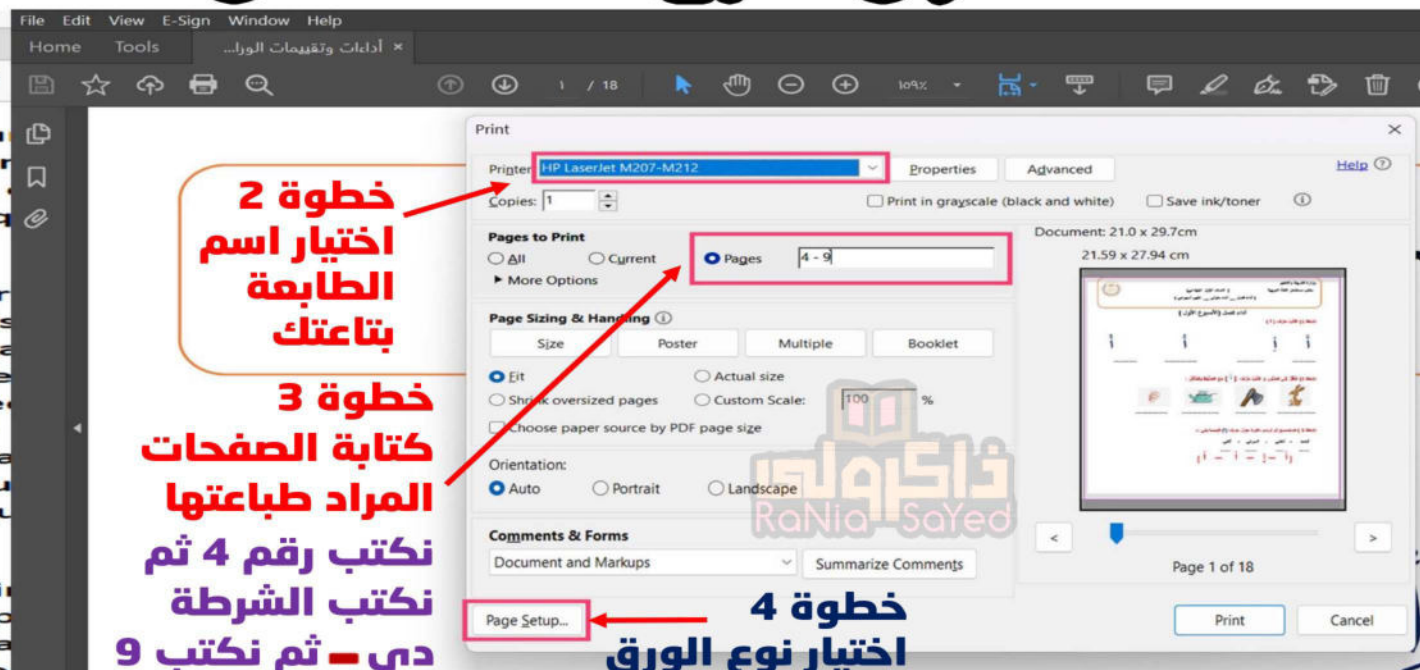


Good luck & Have Fun 😊

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



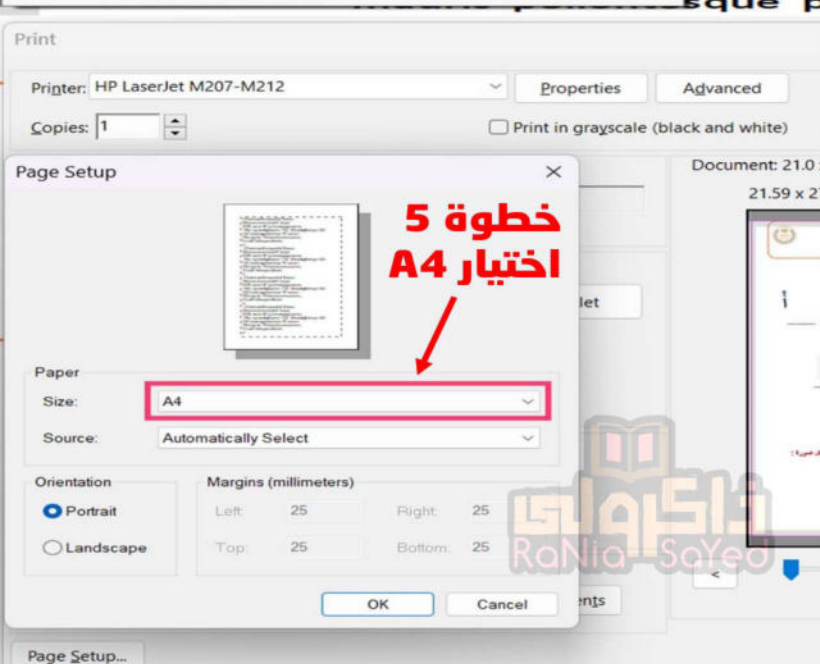
خطوة 1



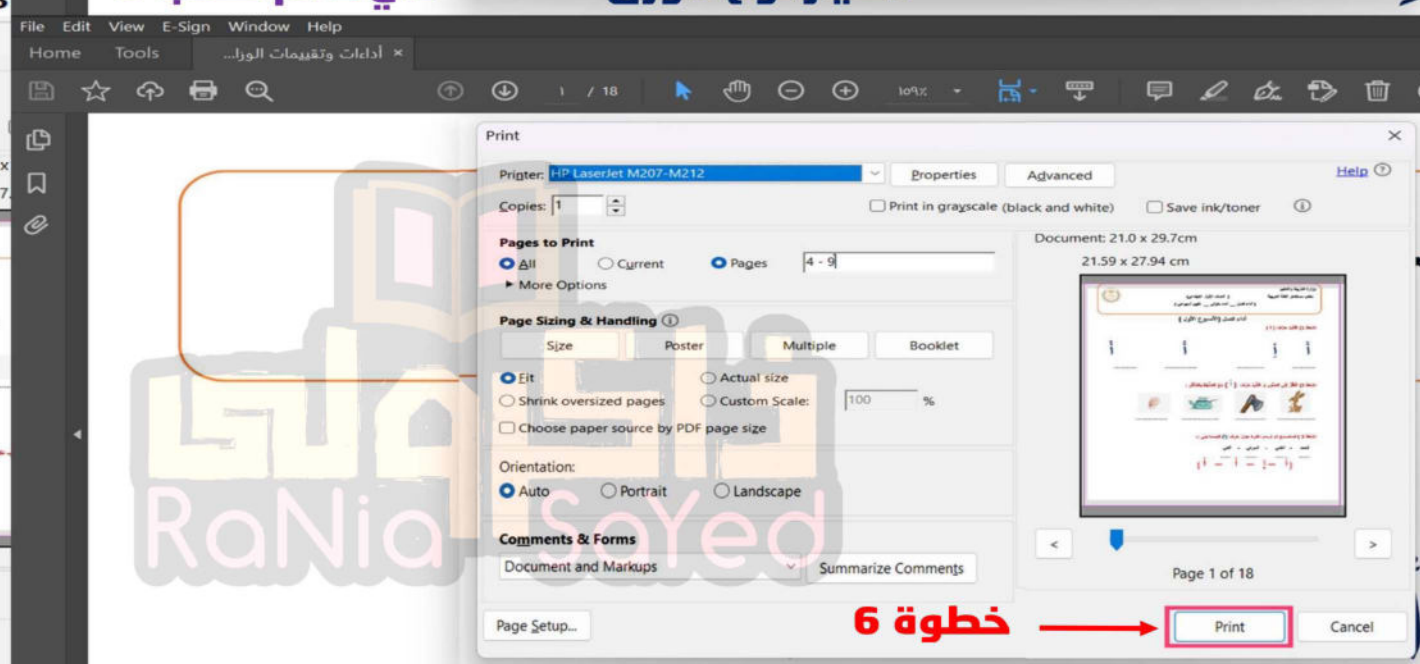
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6